THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIII MUSKOGEE, OKLAHOMA, SEPTEMBER, 1930 NUMBER 9

SYMPOSIUM—"SYPHILIS IN INFANCY AND CHILDHOOD."*

a.—Symptoms and Diagnosis of Syphilis in the New-Born and Early Infancy.
CLARK H. HALL, M. D., Oklahoma City.

b.—Symptomatology and Diagnosis of Late Manifestations of Congenital Syphilis in Children.
WM. M. TAYLOR, M. D., Oklahoma City.

c.—Roentgenological Manifestations of Syphilis in Infancy and Early Childhood.
JOHN E. HEATLEY, M. D., Oklahoma City.

d.—Treatment of Syphilis in the New-Born.
CHARLES B. TAYLOR, M. D., Oklahoma City.

e.—Bone Syphilis in Children.
W. K. WEST, M. D., Oklahoma City.

*Read in Section on General Medicine, Shawnee, May, 1930.

SYMPTOMS AND DIAGNOSIS OF SYPHILIS IN THE NEW-BORN AND EARLY INFANCY

CLARK H. HALL, M.D.
OKLAHOMA CITY

Syphilis in early life may be either acquired or congenital. The former is not so common but still it is encountered. The course in the acquired type is very similar to that in the adult, age seemingly making very little difference. There is the initial lesion followed by secondary and tertiary lesions. The symptoms are often less severe than in congenital syphilis.

Congenital—Symptoms of syphilis are seldom present at the time of birth, but when present early they are usually quite marked. The highest percentage shows the onset of symptoms between the second and fourth weeks. As a rule the child appears normal at birth. Jeans and Cooke report the most frequent early cause of complaint being some lesion of the skin. This was true in 45 per cent of their series of cases. Still reports a characteristic rash in 69 per cent of his cases. Vesicles and bullae do occur but are not as common as often thought. Hazen found one in 100 cases of congenital syphilis. A maculo-papular eruption of irregular distribution is usually noted. The color may vary from pink to a copper hue. There is some infiltration and slight desquamation is often present. Induration of the palms of the hands and soles of the feet is often seen. Desquamation frequently follows leaving a glistening reddish appearance. Induration may be noted also about the face, genital and anal regions, and on the thighs. The desquamation may be slight or in some cases it may be quite extensive. These lesions may be so severe that radial fissures occur. They are usually found at the anus, mouth, nose and eyelids. Bleeding is very common and crusts are usually present. Permanent scars are often left.

The nails are often dry and shriveled. Syphilitic paronychia is not common. There may be loss of hair from the scalp and eye brows but it is not often the case at this early age. Condylomata occur and usually about the anus and genitalia. Mucous patches may be found in the mouth.

Syphilitic rhinitis or snuffles is one of the earliest symptoms, being present in over 70 per cent of the cases. Still reports 14 per cent being present at birth. In these cases the condition is too early in its de-

velopment to be due to exposure to a cold in the common sense of the term. The amount of nasal discharge is not very great and local treatment modifies the course very little. There may be so much nasal obstruction that it is very difficult for the child to nurse. Hoarseness due to involvement of the mucous membrane of the pharynx may also be present.

Spleen—Many clinicians consider splenomagaly during the first month due to either tuberculosis or syphilis. Welde found an enlarged spleen in 61 per cent of his cases. Jeans and Cooke found the condition present in 60 per cent of a series of 510 syphilitic infants.

Liver—Moderate enlargment of the liver is frequently found but not in the percentage found with the spleen.

Lymph Glands—In syphilis of the new-born enlarged glands are not of such diagnostic importance as in later life. The glands involved are usually in the neck, groin, axilla and elbow. Enlarged cervical glands at this early period are often due to scalp or nose and throat infections. If there is an absence of local or general cause then an adenopathy is very suggestive of syphilis in the new-born or young infant.

Bone lesions are to be discussed in another paper in this symposium.

There is often a pseudo-paralysis in the extremities of syphilitic babies. Scherer reports finding this condition present during the first few days of life. Usually it occurs a few weeks later. The pseudo-paralysis is usually present in one arm although both arms or legs are sometimes involved. The arm is in full pronation with the palm of the hand upwards. Pain is the cause of the paralysis and not a real loss of function. The extremity is tender and painful and the infant cries when it is moved.

Special Senses—Changes in the eye due to syphilis are not common at birth but appear a few weeks later. Iritis, choroiditis and keratitis are the lesions found. Optic neuritis is reported to occur occasionally. Congenital deafness may be due to syphilis.

Meningitis—Meningitis with restlessness, rigidity, tenseness of the fontanelle, and convulsions may develop. The hydrocephalous which sometimes follows is not extreme.

General Symptoms—The general condition of the infant usually suffers. There is an anemia which becomes more marked as the condition progresses. The skin has a peculiar yellowish brown appearance. Sometimes the veins of the scalp are very much dilated. Loss of weight is marked and as a rule progressive. Very often the immediate cause of death is the extremely poor general condition. There may be some fever but it is never high unless there is some other complication. Nephritis due to syphilis is sometimes reported at this age but it usually is diagnosed at autopsy.

Diagnosis—The diagnosis of syphilis in the young infant may be quite easy in the typical case while in the obscure case it may be somewhat difficult. The family history is of great importance. Many times there is a history of repeated miscarriages with each fetus living longer. Then a living infant may be born with symptoms that have been mentioned. Jeans and Cooke report characteristic changes in the placenta in 27 per cent of syphilitic cases, and only in such. Usually the typical picture does not develop until a few weeks after birth. Snuffles, skin condition, hoarseness, fissures about the anus and mouth, and a poor general condition are suggestive. Many times the symptoms are not severe enough for the parents to notice them and the patient is brought to the physician for some other condition. There may be some suggestive symptoms and a Wassermann is taken. The diagnosis may be made this way.

Wassermann Reaction—Fordyce and Rosen do not rely upon the Wassermann at birth. A negative reaction at this period does not rule out syphilis. Non-syphilitic new-borns may give positive reactions and syphilitic children may give negative reaction during the first two months of life. Yerington regards a positive Wassermann at birth suggestive but not conclusive. After the first few weeks or months of life nearly all syphilitic infants give positive Wassermann reactions.

In a series of over ten thousand tests on children Jeans and Cooke report the Kahn test as specific as the Wassermann and as rarely gave non-specific reactions, but failed at times to give a positive reaction in young children with active syphilis and strongly positive Wassermann reactions.

The above writers summarize the most important early findings from a diagnostic view point as—placental changes, skin lesions, enlarged spleen, chronic coryza—early, pseudo-paralysis, adenopathy-sug-

gestive, positive Wassermann reaction, and positive Wassermann in parents.

BIBLIOGRAPHY

Jeans and Cooke—Clinical Pediatrics— Appleton.
Still—System of Syphilis, London 1908, Vol. 1.
Welde—Festchr. O. L. Heubner, Berlin 1913, 663.
Scherer—Jahrb.f.Kinderh. 1922, 55.
Fordyce and Rosen—Arch. Derm. and Syphilis, 1922, 5, 1.
Yerington—Arch. Ped. 1918, 35, 40.
Jeans and Cooke—Amer. Jour. Dis. Child. 1921, 22, 402.

614 Medical Arts Building.

SYMPTOMATOLOGY AND DIAGNOSIS OF LATE MANIFESTATIONS OF CONGENITAL SYPHILIS IN CHILDREN

W. M. TAYLOR, M.D.
OKLAHOMA CITY

Latent hereditary syphilis corresponds to the tertiary stage of acquired syphilis in adults. Late syphilis may be taken as a rule to mean early congenital syphilis insufficiently treated. Though we can hardly question the statement that symptoms do manifest themselves for the first time at about the age of second dentition or at puberty, with symptoms so obscure that their nature was unrecognized. This form of the disease is often referred to as "syphilis hereditaria tarda."

Rarely if ever, is the manifestation later than puberty. It seems to me that I do not see as much late syphilis as some observers do. There may be several possible reasons for this. First; I may not recognize syphilis when I see it or that some of the other observers have called things syphilis which were not.

Dunn (Dunn's Pediatrics 2nd. edition) says the typical lesion of the late manifestation of syphilis in childhood is the gumma. These lesions appear at about the time of second dentition or often not till puberty. "They represent a new reaction between the syphilitic virus and the host." The symptoms of gumma as they appear in late childhood do not differ from those of the tertiary stage of acquired syphilis in adults. Three of the most striking manifestations of late congenital syphilis in childhood are:

1. Syphilitic periostitis of the tibia.
2. Interstitial keratitis.
3. Hutchinson's teeth.

Tibial periostitis is usually not painful and may be diffenentiated from old rachitic deformities by the absence of other manifestations of rickets and in which the bony deformity is smooth and regular. (Morse Clinical Pediatrics, Page 367). Other bone involvement as saddle-nose and nodular masses on the skull represent the most frequent sites of gumma at this age. Dr. Heatley's contribution emphasizing the value of the X-ray of bones is here of great value.

Interstitial keratitis is an inflammation of the cornea in which there is progressive cloudiness, with but little accompanying pain. Both eyes are eventually involved as a rule. The diagnosis is easily made. It does not resemble any other clinical condition I know of, and as far as I can determine means luetic infection.

In the permanent teeth the upper central incisors may show a cupping of the cutting edge and are known as "Hutchinson's teeth." There are other manifestations in the teeth: the first teeth often show a hypoplasia, also the sixth year molars sometimes have a hypoplastic and deformed crown separated from the body of the tooth by a well marked line; so-called "Moon's tooth."

These three conditions are the most outstanding in the picture of late syphilis in childhood. The "Hutchinson's triad" often mentioned includes deformed teeth, deafness and keratitis as pertains to syphilis at this age. If this group of symptoms are present they are pathognomic and even considered separately are of much diagnostic significance.

Condylomata are frequent manifestations of relapse from insufficient treatment in first year of life, appearing in the second and third year. The general nutrition is profoundly affected in childhood by syphilis. Retardation of physical and mental development are often observed. It is in these children that the condition described as infantilism is found. Delayed puberty and anemia often are present. Paroxysmal hemoglobinuria in children is always of syphilitic origin and is cured by the arsphenamines.

The heart and blood vessels are rarely involved, in contrast to the adult type. Arthritis symmetrical with no pain, heat, redness or tenderness should lead to a suspicion of luetic infection. Peripheral lymph node enlargement more particularly the epitrochlear, is found. Spleen and liver enlargement, one or both, though not always present.

It is hard for me to believe that the nervous system escapes some damage in

any case from an infection of such nature as syphilis. (Kilduffe-Clinical Interpretation of the Wassermann Reaction, P. 97). "The advent of serology as a means of studying the manifestations of syphilis has materially altered the understanding and conception of neurosyphilis. It is now recognized that, contrary to former conceptions, invasion of the central nervous system may and generally does take place early in the disease even though its symptomatic manifestations may be long delayed." Among the most frequent definite manifestations are, a moderate degree of hydrocephalis, syphilitis meningitis, defective mental conditions and perhaps epilepsy, and in the presence of any of these symptoms a Wassermann should be made.

Jeans says that the symptoms of neurosyphilis in the infant are often latent. The older the syphilitic child the more likely are we to find clinical evidence of neurosyphilis; that the incidence of neuro-syphilis is higher in the negro child than the white, in a series of cases observed in syphilitic children.

Diagnosis is dependent on:

1. History.
2. Clinical manifestations as above enumerated.
3. Persistent stigmata of this disease (Saddle-nose, skull deformities etc).
4. By X-ray of the bones.
5. Wassermann reaction. Blood. and spinal fluid.

Again to quote Kilduffe of Philadelphia, in his recent book on Interpretation of Wassermann reactions: "It's true value depends upon its correlation with an interpretation in the light of all other findings, clinical, historical and laboratory of the individual case at hand."

If the clinical symptoms in children point definitely to syphilis even with a negative Wassermann, they should be treated as syphilitic.

ROENTGENOLOGICAL MANIFESTATIONS OF SYPHILIS IN INFANCY AND EARLY CHILDHOOD

JOHN E. HEATLEY, M.D.
OKLAHOMA CITY

The bones are more likely to be involved in congenital than in acquired syphilis and there is usually involvement of several. The most common manifestation demonstrated by X-ray during infancy is the epiphysitis which shows as a marked rarefaction or destruction at the epiphyseal line of the long bones. This is present in 70 to 90 per cent of the cases of congenital syphilis in the first three months of life. After this time the evidence of epiphysitis sometimes disappears spontaneously and is expected to respond to treatment promptly. There may be a generalized rarefaction of the skull more marked in the posterior portion. The skull becomes very thin and parchment-like resulting in a very marked decrease in density of the shadow on the film. The bossing of the brow and the destruction of the nasal bone needs no X-ray for demonstration.

Later in life the bones in congenital syphilitic involvement show the same changes as in the acquired form. At this time the most common manifestation is a periostitis which shows as an elevation of the periosteum along practically the entire shaft of the bone but occasionally the elevation may have the appearance of blisters. At this time there may be some destruction of the bone associated with the periostitis. Then again there is sometimes an associated bone production causing a characteristic lacework appearance of the periosteum.

The cortex may become thickened practically always on the convex surface of the shaft, such as often found in the tibia, causing the sabre shin deformity. This involvement of the bone may resolve into an osteitis or a gumma formation.

Syphilitic osteomyelitis cannot be differentiated from a pyogenic osteomyelitis with the X-ray but the clinical signs are entirely different.

Syphilitic dactylitis usually gives a characteristic appearance on the film and is an osteitis involving the entire cortex rather than being limited to the convex border as in the tibia.

Acute syphilitic arthritis does not destroy the joint and can be differentiated from other forms of arthritis if there is an associated involvement of the periosteum of the shaft which we mentioned as being rather common.

So we see that the X-ray shows syphilis to be a bone producing disease and not destructive to the extent as in tuberculosis, osteomyelitis, malignancy, etc., and that any portion of the bone or periosteum

may be involved, or to use the old expression, it has many manifestations.

Yet with all these different manifestations (syphilis of the bones) gives a more characteristic roentgenological picture than any other disease. The one exception being syphilitic osteomyelitis.

—o—

TREATMENT OF SYPHILIS IN THE NEW-BORN

CHARLES B. TAYLOR, M.D.
OKLAHOMA CITY

There is no condition in the realm of medicine that calls for better judgment, or greater patience, than syphilis in the new-born. Also, there is no condition that yields more gratifying results when properly handled. With proper care and treatment of prospective mothers, there should be no congenital syphilis. Unfortunately, pregnant women rarely show evidence of late syphilis, and quite frequently present a negative Wassermann. Histories are notoriously inaccurate. No class or creed, or race, are immune to syphilis. Social standing is no barrier to its ravages. We find it in the denizens of the purlieus, in the ranks of the working people, in the middle classes, and amongst the specially favored of fortune. Since it is so universal; since it is so skillful in masking its presence, no examination of a pregnant woman should be considered complete without a serological test—and this should be made early in the pregnancy—certainly before the fifth month. The obstetrician who allows a baby to be born with active evidence of syphilis, after watching and advising the mother through her pregnancy, should sharpen his diagnostic acumen and hold serious converse with himself.

A pregnant woman with syphilis may be promised a baby free from stigmata if she is treated vigorously during the last five months of her pregnancy. This treatment should be carried out without a rest interval to within two weeks of delivery.

The work at Holmes Home of Redeeming Love, a home for unfortunate girls, furnishes rather a large per cent of syphilitic mothers. Those that we see prior to the fifth month invariably have babies free from stigmata and serologically negative. Those that we see later than the sixth month, do not. Because a child born of a syphilitic mother who has been treated intensively for five months is born free of stigmata and serologically negative does not mean that later on symptoms will not develop. It will take many more years of observation and a better system of follow-up before definite conclusions can be drawn. My personal belief is that all children born of syphilitic mothers, when the mothers were treated before delivery, should be treated for at least two years as "Life Insurance." This expression is culled from Stokes[2] and I like it so well I am using it here. Any pregnant woman with a history of syphilis, regardless of the amount of treatment she has had; regardless of the time that has elapsed since a supposed cure, should be treated again; intensively during the last five months of her pregnancy. Since we have no way of definitely proving a cure of syphilis, we are not justified in subjecting the unborn baby to the danger of entering the world afflicted. The treatment of the mother does not vary materially from that which is given other syphilitics. The arsenicals, in conjunction with mercury, are to be preferred to bismuth. It is well to remember that pregnant women will tolerate relatively larger doses than the average case.

More than half of the babies born with syphilis will present some of the stigmata within the first three months. Most common at this age are manifestations in the bony structure; "snuffles;" inability to gain weight—sometimes deafness. Active lesions of the skin are rare.

Dennie[1], who sees many cases of syphilis in the new-born, lays great stress on the roentgenological examination of the bones. He says: "The roentgenological view is diagnostic, in that the worm-eaten areas can be seen between the epiphysis and the diaphysis, and often the capsular portion fits like a cork in the end of the shaft." "The long bones are most often affected, although the lack of development of the bones of the nose, face, and upper jaw is constantly observed."

Syphilis in an infant differs in no way from syphilis in an adult. The treatment is the same. Just as we do routine spinal punctures in adults, so should we do them in infants. In most infected infants we find the spinal fluid positive. Continued punctures done as the treatment progresses, usually shows an improvement until a negative finding is obtained. In the cases presenting exostoses, the piling up of excess bony tissue is stopped, but the existing growth remains as a monument to the

disease. Where there has been destruction of bony tissue there is replacement. Those that escape detection at this time quite frequently do well until the time of second dentition.

In addition to the acute things that bring the child to our attention, certain signs that have escaped observation are found. Enlarged frontal bosses; imperfect development of the bones of the upper face; sabre shins.

We do not know when to stop treating these children. Dennie[1] advocates treatment at intervals throughout life, since the future of these children cannot be prognosticated. Mercury is the sheet anchor in the treatment of these babies. It should be given by inunction and intramuscularly. Neoarsphenamine, in the blood stream, not in the muscle, in the early months clears up the symptoms more rapidly than mercury and is well tolerated.

Conclusions: (1) Syphilis in the newborn occurs more frequently than is generally supposed. (2) The time to treat syphilis in the infant is before it is born. (3) Treatment of syphilis in infants must be continued indefinitely.

[1] Dennie, Charles C.—Monthly Bulletin, Kansas City Southwest Clinical Society. February, 1930.

[2] John H. Stokes—Archives of Dermatology and Syphilis. December, 1921.

—o—

BONE SYPHILIS IN CHILDREN

W. K. WEST, M.D.
OKLAHOMA CITY

The most important aspect in the consideration of syphilitic bone involvement in children, is the differential diagnosis. It has been our experience that the type of bone syphilis, which has been incorrectly diagnosed and incorrectly treated, is that child in which the syphilitic change in the bone has shown up between the tenth and fourteenth year. These cases are fairly prevalent, but not as commonly found as rickets, tuberculosis or osteomyelitis. Osteomyelitis may take on several different clinical pictures, as regards to clinical aspects and pathological changes as shown by the X-ray pictures. That is, we may see the slow developing non toxic sclerosing bone production with very little destruction. Or we may see a rapidly destructive type, with high fever, with high leucocyte count, etc. The latter being typical of pyogenic osteomyelitis and we will not be confused in our suspicion in bone syphilis, because syphilitic infection practically always comes on slowly, and in the case of destructive suppurative periostitis, it is rarely very painful until later, when a mixed infection develops.

In all cases of bone involvement in children, especially where more than one bone is affected, a Wassermann test should be made, which in this particular type of syphilis, is very accurate. And if found positive, the child should be treated conservatively, as far as surgery is concerned, and referred to a man well informed in the treatment of general syphilis of children.

It is uncommon in our clinic, to see a typical case of hereditary bone syphilis treated prior to our initial examination, by radical surgical means. This results in no improvement, and in many cases secondary infection develops, and we have multiple pyogenic osteomyelitis.

In conclusion, I wish to state that a careful study should be made of the history of the child, and that accurate X-rays should be taken of several bones, other than the one more involved. The tibia is most often over developed and in the old neglected cases, results in the typical "sabre shin." It is rarely necessary to do any open operation for drainage, unless other infection is causing toxic symptoms. Therefore, we depend upon general antisyphilitic treatment, plus the use of mechanical support for the prevention of contractions and the relief of pain.

—o—

THE RELATION OF SYPHILIS TO INTERNAL MEDICINE*

C. P. BONDURANT, M.D.
OKLAHOMA CITY

Following the discovery in 1905 by Schaudinn and Hoffman of the infecting organism of syphilis and the establishment soon after of biologic tests, there was formed what has been called the newer pathology of syphilis. This has made it possible to follow syphilis through its symptomatic course and has written the story of syphilis that moves with the smoothness of a narrative. The sequence of visible and invisible changes, mechanisms, and manifestations have been found to keep step with one another in

*Read in Section on General Medicine, Annual Meeting Oklahoma State Medical Association, Shawnee, May 1930.

the unrolling of this picture. As we consider this disease in its relation to the internist, we find that phase which interests him most, because of its insidious progress, is the latent period. The inclusion into the luetic group of many clinical entities, which hitherto had no sound place in the natural history of the disease, has enormously enriched clinical medicine in all its fields and in no other field have the bounds of our knowledge been extended further than in that of internal medicine. I think that it would be safe to state that a great many of this audience were contemporary with this change and with that wonderful advance in bacteriology and immunology which has characterized the last four decades in medicine. As we consider in retrospect these forty years, we cannot help but wonder at the memories and thrills of enthusiasm that were in store for those who entered and practiced medicine during this period. There was a great optimism engendered with the discovery of each new infecting organism and the problems of eradication seemed simple. The literature of the period reflects this seeming victory. The problem of infection was simply the presence of the infecting agent and the damage done by that agent. Soon, this conception changed. It meant more than this; there was a reaction on the part of the human body. From this simple early conception of bacteriology medicine advanced to the more difficult problems of immunology, and infection gradually came to be known as an ever changing biological reaction between two living biological systems,—the infecting agent on the one hand and the human organism on the other. The apparent "healing or cure" of a disease may mean that the infecting agent and the host have entered into a sort of partnership in which the body has adapted itself to the organism, and the organism to the body; and as in all partnerships, for a while, both are satisfied. The organism has acquired a saprophytic symbiotic existence and the body has acquired what we call immunity. This is the history especially of the infection of syphilis as it is related to the problems of internal medicine. The studies of this parasite in human tissues have revealed this newer pathology to mean much. It is found that in those individuals who are apparently well, reveal no clinical signs of syphilis, and have no reactions which indicate the presence of active infection, certain organs and tissues may show the presence of spirochetes, and associated with these organisms there are slight pathological lesions which do not present themselves above the clinical horizon. The same condition is found in the organs and tissues of apparently cured cases which have definite clinical histories. It is further observed that in patients with or without a clinical history of syphilis who present the various clinical pictures, such as myocardial disease, aortic sclerosis, chronic nephritis, diabetes, hepatitis, and many vague and uncertain clinical entities, not diagnosed, the same organisms and the same tissue changes are present, and show that these conditions are in reality due to syphilitic infection. In all of these supposedly arrested cases the spirochetes are not entirely inactive but are causing tissue changes. These damages are shown however in an entirely different clinical manner from that generally accepted as syphilis. These represent those cases not seen by the dermatologist or syphilologist but find their place in the field of the internist, when the damaged tissue is extensive enough to manifest itself clinically. In diseases with an obscure etiology the occasional pleasing therapeutic result which attends anti-luetic treatment may lead more than lightly to the inference that syphilis may have played a greater part than an accidental role. The necessary brevity of this essay does not allow other than mere mention of some of the problems of syphilitic infection which face the internist and which follow in the wake of the greater concept of syphilis from the internists' viewpoint.

A short study of the vital statistics would be of interest. We find that such an examination of statistics when properly compiled gives accurate information as to the cause of death, but not so in the story of syphilis. Syphilis seldom or ever appears on death certificates; it just isn't written there. There are two reasons for this. One is clinical and the other sociological. On the clinical side the relation of the cause and effect is lost sight of, because of the long duration of the infection and the slowly progressive nature of the clinical manifestations which arise from it. Definite names which carry more respectability, such as myocarditis, aneurysm, cerebral hemorrhage, and the renal complications of tabes are given to dignify these records. Sociologically, the relatives and the friends must be comforted

and deceived. We have therefore at the present time no correct estimate of the incidence of syphilis.

In the entire field of organic disease there is no part in which a prognosis is more difficult than in certain forms of visceral syphilis. It is well accepted that both hereditary and acquired syphilitic disease may affect every viscus, but by reason of enormous frequency to all others there are two forms of visceral involvement which cause greatest concern. These are the various forms of cardio-vascular and hepatic involvement. Should we remove from the internist's scope these two great incidences in the sequelae of constitutional syphilis the remaining clinical pictures of visceral luetic disease would play a minor role in his field of clinical pathology and practice. It is the conceded opinion of such pathologists as Warthin, Ewing, and MacCallum that heavy disease tissue may exist without clinical manifestations. To the clinical pictures of hepatic syphilis and their relation to the cirrhosis much has been added to clear up the confused pathologic and symptom complex of liver disease. However, much remains for solution. It is common medical teaching that syphilis may portray in the liver almost every clinical symptom from acute yellow atrophy to hypertrophic cirrhosis. Many of these pictures described as entities are merely pathological steps in point of time in the same process and much confusion comes from a failure to so recognize them. An enlarged liver with or without ascites and with hypertrophy of the spleen has been seen by one clinician, and the same case appears at a later date as hepar lobatum or cirrhosis with atrophy. The liver is known clinically for its recuperative power and in no organ do large gummas appear and disappear so readily with or without symptoms as in the liver. A persistent slowly developing jaundice is suggestive of malignancy in contrast to jaundice of syphilitic hepatitis which is usually mild and periodic in its course. It is usually produced by exacerbations of hepatitis and is non-obstructive but it may occur as typical obstruction with white stools. The treatment of the liver, instead of being simplified by modern methods, has been increased in complexity. However, with proper applications of fundamental principles, these methods have improved the outlook of the patient for a permanent result and restoration of normal function. The luetic liver furnishes the example par-excellence for the ideal site of the Herxheimer reaction and the therapeutic paradox. It follows, therefore, that any treatment of liver syphilis must be carried through to prevent relapse, and a state of affairs worse than at the onset. Rapid healing with fibrosis in the liver results either in a diffuse contraction or in obliteration of portal circulation. If the same degree of healing can be brought about slowly, a physiological adjustment may be accomplished, and by developing from the hepatic parenchymatus reserve a collateral circulation or new bile ducts, the patient may be saved, as Udo Wile says, "from dying from the cure of his own disease." This in no way covers the pathology and treatment of hepatic syphilis, but time bids us pass on.

Syphilis, as it affects the heart, has fully as diversified a group of pathological pictures as occurs in the liver, and, as in this group of hepatic disease, these represent different phases of the same, rather than separate, conditions. It must be remembered that here, in contrast to the liver, we are dealing with an organ that has not parenchymatus reserve. In other words, a destroyed muscular fiber of the heart is gone for good. When viewed pathologically, these conditions may be the result of the degeneration and absorption of multiple minute gummas, diffuse infiltrations, degenerative changes near the terminals of the coronary ateries, and scar production from an obliterating endarteritis. Clinically, these varied processes present themselves as more or less severe grades of myocardial disease. The changes in and about the aortic ring give the varying symptom complex of aortitis and aortic regurgitation. Coronary involvement is so common that it is usually considered as a part of the picture of myocarditis. Broadly speaking, then, clinical syphilis of the heart resolves itself into a consideration of the symptoms dependent upon myocarditis, aortic regurgitation, aortic aneurism, aortitis and coronary diseases. It is not hard to suppose that none of these conditions exist alone, and disease of the heart muscle has a part in each case. As Brooks has stated, the treatment of syphilis of the heart resolves itself into two distinct factors: the syphilitic infection, on the one hand, and the cardiac defect on the other. The inevitable result, then, has been that the syphilologist, highly specialized, but lacking modern methods of diagnosis of cardiac disease, treats

the case from the standpoint of an infection, and gives too little of his attention to the diseased heart. On the other hand, the internist, fully equipped with all the modern instruments, and methods for cardiac investigation, naturally finds his chief concern in the diseased heart, and the extensive constitutional features of the case are too often neglected in his treatment. The general treatment of cardiac syphilis must necessarily, as in the hepatic groups, follow well founded principles. The therapist must be ever mindful of therapeutic shock and paradox. This is especially true of aneurism. Here, the iodides deserve a high place, and their continuous use is almost imperative. Besides this specific treatment, other measures are important; such as, restricted activity, relief from nervous strain, sedatives, digitalis, diet and other general health measures.

The co-existence of syphilis with many other maladies oft times calls for the exercising of critical judgment. We find this exemplified in the association of syphilis with thyroid diseases, diabetes, cancer, pulmonary disease, and gastro-intestinal disturbances; and the dermatologist has to ever be mindful of the presence of syphilis. Of great interest and seeking an early solution is the relation of pre-existing syphilis to the general syndrome of hypertension. The condition as found here is not as we would expect. Syphilis, the disease, by seeming pre-disposition as a producer of arterial damage in all sized vessels and heart muscles, plays only a minor part in the clinical pictures of general arteriosclerosis and hypertension.

The great subject of neuro-syphilis is of much concern to the internist because it presents a varied picture. In reporting on two hundred syphilitic patients whose chief complaint was stomach trouble, Stokes and Brown found neuro-syphilis in seventy per cent. Late syphilis of the nervous system, long regarded as untreatable, is now found to yield so rapidly to improved methods of diagnosis and treatment that it is not too much to state that it can usually be mastered from the practical standpoint. The accuracy of diagnosis which existed two decades ago has been put on a much higher plane through the examination of the spinal fluid alone. In this, as in all fields of medicine, the secret to success is early diagnosis before destruction is paramount. Symptoms such as headache, paresthesias, and lightning pains, are phenomena of irritation, and are found as signals in the early and treatable phase of the disease. Argyll-Robertson pupils and lost reflexes show but little response and represent, on the whole, irremediable damage. Habitual painstaking examination is the only measure for the detection of the early signs, and the spinal fluid examination nearly always clears a diagnosis.

A prognosis of a case of syphilitic infection is usually among the first questions of the anxious patient. To the man who bases his opinion upon the response of the visible accidents of infection to treatment, much disappointment is in store. It is unfortunate that the majority of observers see only that phase which occurs in their fields; and few of these have the opportunity to follow that patient from the initial infection through the varied possible clinical manifestations. Too often the visible lesions are treated until they disappear and the prognostic views are influenced too much by the manner in which these respond to treatment. It is only by piecing together the scattered observations by clinicians, pathologists and serologists, that we can obtain our imperfect conception of the prevalence and possibility of the great infection of syphilis.

The variations undergone by the treatment of syphilis in the different ages form a curious history, and now the treatment in all its complexity fills our libraries. The first principle of treatment is to be mindful of the pathological process in question. The subjects we have to treat nearly always present, independently of their syphilis, a certain pathological individuality, which is eminently variable. This makes it imperative that we consider the patient himself as well as the administration to him of specific remedies. This man, the patient, himself, is too often a neglected individual. Besides our mechanical assistance to him, our task is to strengthen his intellectual control, to toughen his shrinking sensibilities and adjust the burden to the bearer. Thus may we also add to the sum total of human health, happiness, and progress.

413 Medical Arts Building.

THE EFFECT OF GAS EXPLOSIONS UPON THE HEARING

W. T. SALMON, M.D.
DUNCAN

The legal profession has issued a friendly challenge to the medical profession to establish definite proofs of the effect of certain injuries to the hearing apparatus so that courts of equity may be able to determine just compensations to those who have sustained these injuries.

Much less than a century ago scientific investigators first explored the ear beyond its middle portion. The inner or perceptive organs of hearing occupy such a tiny space in a bone so securely hidden, and are surrounded by such vital structures, it is not surprising that only the delvers of the obscure have dared to penetrate this mysterious field. Too much credit cannot be given to the research workers who by their arduous labors have given to the world that enlightenment that makes this a field in which the ambitious now may venture.

"Until a few generations ago so little knowledge was absolute, and the human mind so willing to doubt all evidence which could not be proven, that it was quite difficult to establish the obscure." "The whole topic of audition is now one of the most thrilling and alluring of all problems of science." Clinical experience has made it possible to diagnose certain lesions, and pathology has established definite evidence whereby a positive diagnosis may be made of many diseases and injuries of the delicate structures of the inner ear. By the analysis and comparison of symptoms we have been enabled to deduct certain evidence that assists us in estimating the pathological conditions that might be expected from inflammatory changes, caused by diseases and traumatic conditions.

It has long been proven satisfactorily that certain definite portions of the cochlea degenerate as the result of exposing them for a long time to a continuous sound of certain pitch. In the same way that the continuous use of the piano loosens its strings so does repeated concussion destroy the equilibrium of the sound perception of the cochlea.

It has also been determined that high explosives over a piano will destroy its harmony. The same concussion will produce a disturbance in the labyrinth that will result in a partial and sometimes a total loss of hearing.

After these facts had been established firmly there remained the most difficult problem to solve, as to how these continuous sounds produced the loss of hearing. One of the first theories advanced was that it was probably due to the concussions of the fibers of the nerves in the cochlea and the semicircular canals. A more enlightened experience proved that the semicircular canals were not disturbed in the cases produced by monotonous sounds and rarely in the cases where there was almost a total loss of hearing by high explosives. Post mortems have revealed that the lesions in the labyrinth were produced either by hemorrhage or an edematous condition of the basilar membrane. Our older text-books are replete with the histories of cases where telegraph operators have sustained loss of hearing from the constant ticking of the instrument to which their ears had been continuously exposed, often in the ear that had been subjected to the ticker most usually. I have recently had a patient who said her hearing had been very much impaired by the clicking of a sewing machine which she had run for several years.

In our institutions where aural diseases are treated, as well as in the individual experience of those who have treated the ear, a wealth of information has been garnered on the loss of hearing. For example, the monotony of sound from continuous hammering makes many a boiler-maker sustain almost a complete loss of hearing. Also, Braun and Freisner have cited the experiments on the hearing of guinea-pigs which have been subjected to the same tone, repeated over and over again, through a long period of time. The animals were killed and the cochlea examined histologically. In the animals where a high pitch was employed there was regularly found degenerative changes in Corti's organ in the basil whorl of the cochlea. Where a low pitch was used, the degenerative changes appeared in the upper whorl. The destruction of these portions of the cochlea alone would not account for the loss of hearing sustained by telegraphers and boiler-makers as the entire cohlea was affected in these cases. What really does happen in an ear that has been subjected to continuous sounds is the production of hyperemia of a definite

spot (as a noise near a piano will cause to vibrate certain strings on the piano so do certain pitched sounds stimulate definite places in the cochlea). This hyperemia develops into an edema which spreads throughout the basilar membrane producing a permanent loss of hearing throughout the cochlea.

After the recent World War the military surgeons reported a vast number of casualties where the loss of hearing was partially or totally from the effect of high explosives. There are a few veterans of the Civil War living today who lost their hearing from cannonading, as an evidence that this may be permanent.

Dr. J. Gordon Wilson, M.B. (Chicago) in his very interesting report of his experience with those who had sustained lesion of the ear from high explosives said: "In the present conflict which is pre-eminently the war of trenches and high explosives, cases of concussion deafness are numbered by the thousands. I know of no available figures that can help us to form even an approximate estimate of the number injured in hearing either temporarily or permanently by shell explosions." Dr. Wilson also cited experiments that had been made on animals to determine the effect of pistol shots fired near the ear. Some of the animals were killed at once, others at varying times, with results found as follows: there were, consistently, ruptures of the tympanic membrane and hemorrhages into the middle cavity; pathological changes were present in all the coils of the organ of Corti; the hair coils were swollen, had lost their characteristic shape and were loosened from their support; Deoter's cells had lost their normal appearance and appeared as an homogeneous mass; the cells of Henson were flattened out; the pillars of Corti were bent and the tunnel filled with an homogeneous mass, probably of extravasated contents; Nuel's space could no longer be seen; the tectorial membrane was raised sharply up and in extreme cases its free end reached Reissner's membrane; in the nerve fibers changes were seen, especially in the myelin sheath; etc.

It is the entire purpose of this paper to present for your consideration the injuries sustained by workers in the gas fields, and to emphasize their importance. These sudden explosions frequently hurl men through the air a considerable distance where they are picked up in a perfect condition of shock, most of them dazed, some of them unconscious. The most permanent injury sustained is a loss of hearing for which courts of equity must rely upon the testimony of the otologist to fix the indemnity that justice demands. It would be interesting to know how much of this testimony is influenced by the demands of the insurance companies who pay the physicians for their services. So far as I have been able to determine there has never been a written report of these particular injuries, neither has there been a recorded post mortem showing the lesions produced. We are enabled to form a reasonable conclusion from the accumulated evidence showing the pathological conditions created by continuous noises and heavy cannonading, and by explosions of gas bombs on the battle fields, and this evidence establishes an intelligent understanding of lesions produced by a far greater force.

In an explosion of a gas well the shock felt and the injuries sustained are often greater than any produced from the concusive forces of cannonading: the drum membrane may or may not be ruptured, there may be an hyperemia of the tympanic cavity, the stapes may be driven inward through the foramen ovale, there may be a hemorrhage in the cochlea, or there may be an edema of the cochlea and general pathological conditions described under concussion from cannonading and bomb explosions; from which there may arise a partial or total loss of hearing which may be a temporary or permanent handicap.

DIFFERENTIAL DIAGNOSIS

It is the malingerer to whom the charlatan lawyer is some times *particeps criminis*, who is often nauseous to the courts, and who makes it imperative to the aurist to make a discriminating diagnosis.

In any case where the patient claims to have lost his hearing from an accident it is quite natural for the otologist to speculate how much of this loss may be attributed to some pathological condition that may be found in the nose and throat, and he should always make a systematic examination of these organs.

Among the diseases, to which I shall only briefly refer, from which we must make a differential diagnosis are: progressive deafness, otosclerosis, syphilis, Meniere's disease, atheromatous degener-

ation, suppurative labyrinthitis, and the taking of certain medicines.

I think it quite sufficient to say that defective conditions of the nose and otosclerosis may be eliminated if the deafness has occurred suddenly as it requires from one to twenty years of the two former conditions to produce deafness. It is impossible to diagnose absolutely syphilis from any symptoms that may arise from the ear, and we must look for other attending symptoms which should be confirmed by a Wassermann.

Meniere's disease no doubt usually depends upon some circulatory disturbance and is ushered in by the syndrome of sudden occurrence of deafness, tinitus and vertigo and some times vomiting, whereas vertigo and vomiting rarely attend the symptoms produced by sudden explosions. It is pre-supposed that an atheromatous degeneration of the labyrinth will be attended by this condition of the blood vessels throughout the body. Purulent labyrinthitis is invariably accompanied by spontaneous nystagmus, vertigo, and disturbance of equilibrium, and associated with meningitis, syphilis or other disease.

The auditory nerve seems to be more susceptible than any other nerve to the action of certain drugs circulating in the blood. Quinine, salicylic acid, morphine, chloroform, tobacco, alchohol may cause a temporary disturbance of function or a permanent disturbance if continued in large doses for a considerably long time.

There is a psychological aspect that demands consideration in all serious cases of trauma: the injured person nearly always worries over just how much he is going to be incapacitated by the injury, sometimes he worries over the support of his family during the time he does not draw a pay check; he usually becomes suspicious from this mental worry and believes that justice is blind and will rob him in the final settlement. We have learned by experience that this mental condition will never improve, but often grow worse, the longer these cases are protracted and that this neurosis often disappears as soon as the case is settled and dismissed. So every case should come to trial and be disposed of as soon as possible.

Finally, the lawyers know as little about medical questions as the physicians do about questions of law and it must be on the intelligent testimony of the physicians that the presiding judge must depend for the solution of medical problems. In order to clear the medical profession of the stigma caused from the testimony given before our intelligent courts, by certain careless physicians, it becomes the honored duty of every member of this body, after a correct diagnosis has been established, to testify only the truth and real facts that have been found, regardless of the interest of the claimant or defendant.

REFERENCES

Braun-Friesner.
J. Gordon Wilson, Chicago.
Jackson Coats.
Burnett Textbook on Ear.
St. John. Textbook on Ear.
W. J. McNally, The Pathology of the Ear.

—o—

STREPTOCOCCIC SEPTICEMIA WITH THE MIDDLE EAR AS THE INFECTION ATRIUM*

A. C. McFARLING, M.D.
SHAWNEE

Since it is estimated that streptococci are responsible for more than eighty per cent of all blood stream infections, we are confronted with the importance of studying the various biologic groups of this organism, the respective cultural characteristics and pathogenicity of the different strains, as well as the serologic problems thus imposed. Although a vast amount of research has been done looking to a proper classification of the various strains, little of a definite and dependable nature has been accomplished. However, recent reports from some of the researchers tend to justify the hope that the comparatively near future may furnish us with some solution of the problem.

Tunnicliff of Chicago, from the John McCormick Institute for Infectious Diseases, in an article recently published in the Journal of the American Medical Association, says in part, "In studying colonies of hemolytic streptococci on chocolate agar, I find that typical cultures from erysipelas produce a vivid green after twenty-four to forty-eight hours growth, while those from scarlet fever produce no color change, except occasionally a slightly greenish tinge, after several days incubation.

This difference in color reaction on chocolate agar of streptococci from scar-

*Read before the Eye, Ear, Nose and Throat Section, Annual Meeting Oklahoma State Medical Association, Shawnee, May 27th, 1930.

let fever and erysipelas appears to be further evidence of their biologic difference and is in agreement with the specificity of the immunity tests of these two forms of streptococci." Parenthetically stating the immunity tests to have been opsonification, agglutination and toxin neutralization.

It was further found in this same series of tests that although streptococci from septic sore throat, also cause chocolate agar to become green, immunologically they do not belong to either of the other groups mentioned.

In studying streptococcic septicemia, it would be very interesting at this juncture to discuss all the ports of entry accessible to this organism together with environmental influence affecting the same, but such a discussion would go far beyond the scope of this paper. Suffice it to call your attention to one or two points in connection with those cases of sepsis in which the invading organism reaches the blood through the ear. Its presence in the ear being easily accounted for, in as much as medical literature is replete with reports substantiating the statement that hemolytic streptococcus is constantly present in the deep tonsillar crypts, while streptococcus viridens may be found on the surface of normal mucus membrane. The angina of scarlet fever or diphtheria, the septic sore throat, may be the initial lesion of a streptococcic sepsis. Streptococcic sepsis may also follow local foci of infection in or about the mouth.

The middle ear is a very important portal of entry for the streptococcus. Everyone is familiar with those cases of sepsis which come secondary to a more or less violent otitis media, localizing in the mastoid process and in which the invasion of the blood stream may not be suspected until surgical intervention reveals a sinus thrombosis or some other equally grave complication. But for the purposes of this paper, I wish to use the term sepsis to denote those symptom groups or diseases which result from the general invasion of the body by infectious organisms or their toxins, and in which the blood infection or intoxication is predominant in the clinical picture. The otitis media, which is the starting point of the process, may be acute or chronic and with or without perforation of the tympanic membrane. The lateral sinus may become involved in rare cases, without symptoms or signs of the mastoid involvement, and with only the systemic symptoms and congestion of the upper segment of the tympanic membrane to suggest the true state of affairs.

The following case report may be of interest in this connection, since it had its inception in a mild throat infection, was apparently transmitted to the tympanic cavity, from whence it found its way into the blood stream.

Name—C. M. Age—9. Past history negative, except previous attacks of tonsillitis. Developed a mild tonsillitis, which was followed in five or six days by an otitis media. The tympanic membrane was incised with free drainage, which lasted for about ten days. This was followed by two or three days in which there was neither drainage nor rise of tempature. Then a temperature of 101 developed, associated with pain over the right ear, extending into the occiput. Onset sudden, with violent convulsions. Temperature within four hours ran to 106. The ear was again opened with very slight drainage. Temperature continued from 102 to 106.5. Blood cultures were made and found positive for streptococcus hemolyticus. Streptococcic serum was given with no results. One per cent solution of mercurochrome was given intravenously, in doses ranging from 6 to 10 c.c. Doses were repeated every three or four days. Following the administration of mercurochrome, temperature would fall almost to normal, remaining for twenty-four to forty-eight hours. Patient would then have a severe rigor, temperature 105 to 106. This continued until the fifth dose, following which the patient made a fairly rapid recovery, temperature never going above 100. No other complications.

While no treatment has, as yet been found, which is of sufficient definite value to warrant the expectation of results with any degree of uniformity when consecutively employed; yet the general trend of research on this question does much to engender the hope that the biologic difference in the various strains may be sufficiently well known in the near future that proper serologic treatment may be available to inhibit the propagation in the blood stream of the different growths, without the long wait for the remedy, by our present autogenous methods.

CHEMICAL ANALYSIS OF THE BLOOD AND FUNCTIONAL TESTS AS AN AID IN DIAGNOSIS*

V. G. ISVEKOV, M.D.
SHAWNEE

The chemical analysis of the blood, the same as functional tests are not so popular among the general practitioners as the so-called "Routine Urine Analysis" and "Blood Count." The main reason for this is probably the fact that while the previous "routines" could be done either by the physician himself, or by his nurse, the latter requires an elaborate laboratory equipment and also a highly trained technical operator.

Urine analysis and blood count are already recognized as routine by the profession even in private practice, and scarcely would any one attempt to make a definite diagnosis of appendicitis without checking the total leucocytes count. More and more every day the physician realizes the importance of chemical analysis of the blood, and it is only a question of time before this analysis will become a necessity, just as it has already a part of the routine in the leading hospitals.

Fortunately for the profession, the number of adequately equipped clinical laboratories is daily growing. At the present time a hospital or clinic could not be called modern without having a clinical pathologist on their staff. Private laboratories under competent management are at the disposition of physicians in the majority of towns, and are available within reasonable distance to most practitioners.

*Paper read before the section on General Medicine Annual Meeting Oklahoma State Medical Association, Shawnee, Okla., May 26-28, 1930.

CHEMICAL ANALYSIS OF BLOOD

The size of this paper will not permit an elaboration of technical details of analysis, and description of physiology of the components of the blood. Therefore we will only briefly refresh in our memory the normal limits of a few of the most important components of human blood, and show the pathological conditions in which these components undergo changes. The knowledge of these factors will be of great assistance in the diagnosis of many dieases and also in its prognosis.

Chemical analysis of blood was first made and originated in this country by the American investigators, namely Folin, Benedict and Van Slyke.

According to Hawk, the blood of the normal individual is composed chiefly of the following constituents: (Table 1).

In order to help the general practitioner who seeks a correct interpretation of laboratory findings, let us review their significance and indicate the conditions in which normal constituents become altered.

Non-Protein Nitrogen.-N.P.N.—A considerable increase of this constituent is found in cases of interstitial nephritis, mercurial poisoning and in acute intestinal obstruction. The figures above 200 mgms. are not at all uncommon in cases of chronic interstitial nephritis, and they signify a grave prognosis. A less marked increase is usually observed together with the increase of other nitrogenous components, such as urea, uric acid and creatinin.

Urea Nitrogen.—A slight increase may

TABLE 1

CONSTITUENTS	ACCEPTED NORMAL RANGE
Non-Protein Nitrogen	25 to 35 Mgms in 100 cc. of whole blood.
Urea Nitrogen	10 to 15 Mgms in 100 cc. of whole blood.
Uric Acid	2 to 3.5 Mgms in 100 cc. of whole blood.
Creatinin	1 to 2 Mgms in 100 cc. of whole blood.
Glucose	75 to 100 Mgms in 100 cc. of whole blood.
Cholesterol	150 to 190 Mgms in 100 cc. of whole blood.
Chlorides, as NaCl	450 to 500 Mgms in 100 cc. of whole blood.
Calcium	9 to 11 Mgms in 100 cc. of whole blood.
Inorganic Phosphorus	3 to 4 Mgms in 100 cc. of whole blood.
Alkali Reserve, or CO2 in plasma	55 to 75 vol. per cent.

often be observed in cases of diabetes mellitus, though the component is not characteristically altered. Slightly increased urea nitrogen content is also associated with the early stage of interstitial nephritis, with certain pathological conditions of the prostatic glands, and with eclampsia. In the last named condition an increase in urea nitrogen is most characteristic. In the terminal stage of nephritis this component is often increased to 10 or 20 times the normal amount, and the figures sometime reach 200 to 300 mgms. as the *exetose lethalis* become emminent. Acute nephritis almost always is accompanied by an increase of the urea nitrogen together with other nitrogenous substances. An increase may also be suggestive of intestinal obstruction.

Uric Acid.—Aside from nephritis when all nitrogenous ingredients are increased, the retention of uric acid in the blood is a typical finding in cases of gout. This sign alone may often differentiate from arthritis in which case the component is present in the normal amount. Uric acid is usually increased in cases of eclampsia.

Creatinin.—Any marked increase in this component indicates a very serious condition with a grave prognosis. In severe cases of diabetes the amount of Creatinin may reach 4 or 5 mgms. In uremic attack it may reach the alarming figures of 15 or 20 mgms. Such an increase usually precedes death but shortly.

Glucose.—While during renal diabetes, there is no increase of blood sugar or even decrease is not uncommon, in mild and severe forms of *diabetus mellitus*, the amount of this carbohydrate may reach over one gram. The author of this paper recalls a case in which glucose in blood was so high (approximately 1.5 grams) that a special strong standard was required to estimate the reading of colorimeter. Nephritic conditions may give but slight increase of glucose in the presence of marked increase of nitrogenous ingredients.

Cholesterol.—The decrease of the amount of this component is characteristic of pernicious anemia. An increase of this ingredient alone without increase of nitrogenous group, as N.P.N. and urea, should be considered as most suggestive of cholelithiasis. The cholesterol content can be increased also in cases of nephritis.

Alkali Reserve or CO2 Combining Power In Plasma.—The alkali reserve in the blood is markedly decreased in acidosis and may be as low as 10 per cent in the cases of diabetic or uremic coma. The amount of CO2 is a very important factor for prognosis of these diseases. Very often under the action of carbonates medication the clinical picture of acidosis is not significant enough, but the amount of gas in plasma would be found below the normal.

Chlorides as NaCl.—Increase of chlorides is most often associated and is also a very characteristic symptom in eclampsia. In the terminal stages of nephritis one finds either increase or decrease. As logically as we could expect the amount of chlorides in blood is increased in the presence of oedematic conditions, and especially in Bright's disease.

Inorganic Phosphorus.—The most important condition which reduces the content of P in blood is rickets. Very often the decrease of P in blood may be detected in the absence of the typical clinical symptoms. The increase of this normal substance is found immediately after fracture occurs, and during the process of repair, and indicate a good union.

Calcium.—This is a very important compound, especially in the practice of pediatrics, as the decrease of Ca is always noted in the cases of infantile tetany.

INDICATIONS FOR CHEMICAL ANALYSIS OF BLOOD

As the increase of sugar in blood may be detected long before it appears in the urine or before it reaches the urinary threshold, every suspected diabetic should have a blood sugar determination even if the Benedict test in the urine is negative.

As an old fashioned Fehling's reagent, the Benedict's is used on exactly the same principle as that of the reduction of copper. Contrary to the general opinion, which considers this test as very dependable and as one which does not require a particular technic, obviously it is a very delicate test and even in the hands of the most experienced worker requires a careful attention in the interpretation of the results. Many factors which could not be checked during the routine laboratory procedure might interfere in the reaction giving absolutely erroneous interpretation. In the first place the preparation of the reagent requires the utmost care in the choice of the ingredients to be used. In no instances should an attempt be made to prepare this solution from the chemicals

of U.S.P. purity (from the drug store), as they contain the traces of the different reducing substances such as starch, etc. Only chemicals of C.P. purity with known analysis should be used in preparation of Benedict's reagent.

But even with all these precautions we can find many substances in the urine which could not be detected during routine analysis but which possess the reducing power and consequently might change the true reading. The phosphates with alkaline earth-metals are formed with the alkaline copper solution and gives a precipitation which can be interpreted as a positive reaction of the reduction of copper by the supposedly present glucose.

The glycouronates formed on the ingestion of certain drugs also possess strong reducing power. These drugs are: Chloral hydrate, camphor, menthol, thymol, antipyrine, etc. For all these reasons the final interpretation of the Benedict's test should be very careful and in doubtful cases not only repeated several times with specimens voided at different times, but checked also with the quantitative estimation of glucose in blood.

It is evident from previous discussion that as soon as the amount of glucose in the blood is increased the determination of all nitrogenous components should be immediately undertaken in order to check the conditions of the kidneys.

In cases of nephritis, the chemical analysis of the blood is the only reliable data on prognosis and on efficiency of treatment. If the symptoms of Bright's disease are present, the determination of chlorides in blood will be of great assistance.

No scientific and conscientious treatment of diabetes or nephritis could possibly be done without frequent check of the amount of glucose and nitrogenous ingredients, not only in the urine, but in the blood as well.

Determination of uric acid in blood, aside from nephritic conditions may be of great value in the differential diagnosis of gout.

In cases of eclampsia or intestinal obstruction the chemical analysis of the blood is a very valuable factor in prognosis.

Surgeons will find in chemical analysis of blood, not only an aid in diagnosis, but often the analytical findings might

TABLE 2

SUSPECTED OR EXISTED CONDITIONS.	THE NATURE OF REQUEST
Diabetes	At least every two weeks, or more often, complete chemical analysis of the blood. Twice each week, determination of Glucose in the blood. Every two days, determination of the amount of Glucose eliminated during 24 hours.
Pathological conditions of the Urinary tract.	Complete chemical analysis of the blood. Periodical determination of the nitrogenous ingredients.
Pregnancy	In the presence of toxic symptoms or of eclampsia, complete chemical analysis of the blood.
Gout	Chemical analysis of the blood with special request for Uric Acid.
Pernicious Anemia	Determination of Cholesterol in blood.
Disturbance of Endocrine System	Chemical analysis of the blood and Glucose tolerance test.
Fractures	Determination of Inorganic Phosphorus in blood.
Pre-Operative Care	Complete chemical analysis of the blood **Imperative.**
Intestinal Obstruction	Determination of Nitrogenous substances in blood.
Rickets or Tetany	Determination of Phosphorus and Calcium in blood.
Acute and chronic poisoning	Chemical analysis of the blood.
Cholelithiasis	Determination of Cholesterol in the blood.

induce them to hasten, to postpone or even to cancel the surgical treatment. As the normal individual suffers a diminishing of the alkali reserve under general anesthesia, and during the post-operative stage, the danger is apparent in administering an anesthesia to a diabetic patient in whom this reserve may be diminished from the beginning. In the same danger is the patient with pathological condition of urinary tract. Cases showing urea between 20 or 30 mgms. should be operated upon with considerable precaution and if urea is above these figures (30 mgms.) preliminary treatment should include the measures to combat the conditions. In cases where only one kidney is involved (which could easily be diagnosed by P.S.P. test, as described below) the blood findings may be normal or slightly increased. After the nephrectomy is performed the blood constituents become immediately normal.

The obstetrician should bear in mind that the chemical analysis of the blood might be of great value in cases of toxemia or hyperemisis, as these conditions are accompanied by definite increase of nitrogenous components. In normal pregnancy these substances are usually diminished in amount.

No other diagnostic methods can give such accurate information as to the status of the cases of rickets or tetany as the blood analysis.

As the gallstones are, in the majority of the cases, composed of cholesterol, it would be natural to suspect cholelithiasis when the blood cholesterol content is increased.

As the general rule the chemical analysis of blood should be requested in cases of toxemia when these conditions cannot be explained by bacteriological study.

In conclusion of this chapter let us prepare a table indicating the nature of chemical analysis that should be requested under different conditions of tentative or presumptive diagnosis. (Table 2).

To complete this brief outline of chemical analysis of blood, we shall emphasize the great importance of correct collection of specimens and in a few words the technic for the same.

1. Only fasting specimens should be used, that is the blood should be collected from the patient early in the morning before breakfast, or at least 8 to 10 hours after repast.
2. Under usual aseptic precaution, about 8 to 10 cc. of blood are withdrawn from the vein of the arm.
3. Immediately after, the collected blood should be transferred from the syringe to a recipient containing small amount (about 20 mgms) of anticoagulant substance (oxalates or citrates).
4. Specimen should be sent to the laboratory immediately so as to be there not later than 12-24 hours after the blood was withdrawn.
5. Specimen of blood for determination of alkali reserve should be collected in the laboratory or at the bedside only by the trained technician.

FUNCTIONAL TESTS

The following tests are important for diagnostic purposes, as they indicate the functional conditions of the separate selected organ.

Test for Renal Efficiency, so-called P.-S.P. Test.—While the chemical analysis of the blood will denote immediately the disturbance of the kidneys, it will not indicate whether one or both kidneys are involved in the process. In such a case the P.S.P. test is not only valuable as a means of diagnosis but is most imperative. The test is a very simple one: the patient receives intravenously or subcutaneously one cubic centimeter (*exactly!*) of the indicator Phenolsulphonephtalein. The urine is collected separately from each kidney 10 minutes after intravenous injection or 70 minutes after subcutaneous; the second specimen is collected exactly 20 and 60 minutes respectively after the first. By colorimetric method the amount of the dye eliminated from each kidney is determined. Under a normal condition the output of the indicator should be 40 to 60 per cent at the end of collection of the first specimen and the total 60 to 80 per cent. Less valuable information regarding the function of kidneys could be obtained also by estimation of the amount of the dye in the voided urine at the same intervals. This test will denote the existing pathology of the kidney or kidneys, but will not indicate what kind of retention is being dealt with; for this reason the P.S.P. test and chemical analysis of the blood should complement each other.

Urea Concentration Test.—This is a very simple and reliable test for determination of degree of urea retention. The patient ingests an aqueous solution of urea. During the next two hours two specimens of urine are collected by voiding and the amount of urea in each is determined. Under normal conditions, the total output of urea during two hours should be about two per cent. Value less than one per cent indicates the existence of urea retention.

Glucose Tolerance Test.—This test is very important in the study of conditions where metabolism of carbohydrates is disturbed. Consequently this test is very valuable in the conditions which involve endocrine dysfunction. Hyperthyroidism shows marked hyperglycemia, while hypothyroidism reveals opposite conditions—hypoglycemia. The interpretation of this test would be easy if the data obtained from analysis would be reported in the form of a curve. (Table 3). The abscissae is divided into equal parts representing the hours in which the specimens are collected, considering the fasting period before ingestion of glucose as the zero hour; the ordinate represents the amount of glucose in milligrams per cubic centimeter of the blood.

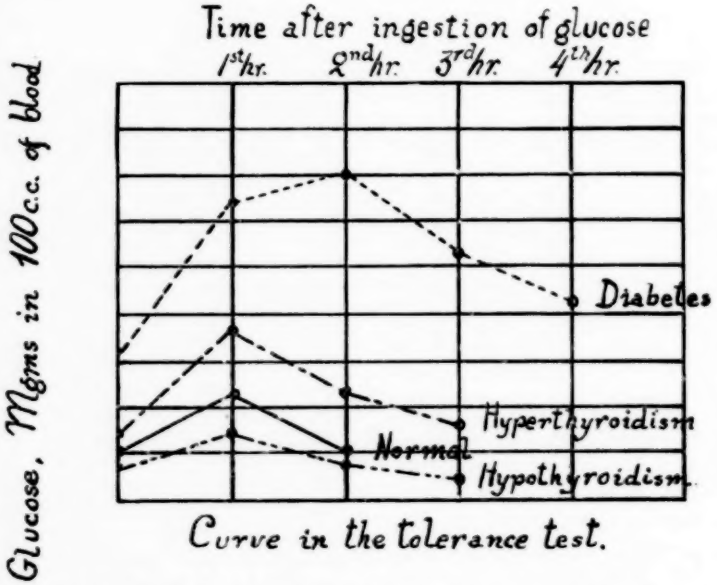
In a few words we can describe the technic of the test: early in the morning, before breakfast, the specimen of blood and urine are collected. Patient receives a solution of 100 grams of C.P. anhydrous Dextrose. Every hour during the next four hours specimens of blood and urine are collected and the determination of glucose in each of them is made.

As these can be seen from the curve, under normal conditions the blood sugar should be normal at the end of second hour and urinary sugar should disappear completely.

The diagnostic value of this test in diabetic conditions is not only of prime importance, but is self-evident and it is advisable as *sine qua non* condition that no case of diabetes should be dismissed from treatment and care unless the sugar tolerance curve is approaching to the normal.

Recently Dr. Henry J. John of Cleveland, Ohio, who is an authority in the matter of diabetes, pointed out the fact that

TABLE 3.



From "Clinical Diagnosis by Laboratory Methods" by J. C. Tood and A. H. Sanford

usual technic in the performance of sugar tolerance test is very uncomfortable to the patient as it requires five collections of blood specimens by the puncture of the vein, and he proposed to simplify the same. He gives to his patient a breakfast very rich in carbohydrates consisting of "half grapefruit, with sugar on it, oatmeal with a great deal of sugar and cream, pancakes with syrup, and coffee." Two and one half hours after this meal he collects a single specimen of the patient's blood and "even if he has a mild degree of diabetes his blood sugar two and one-half hours after such a meal will be at high level, whereas if he is not a diabetic, his sugar will still be within normal limit." By the means of this test Dr. John gives such a conclusion: "If the blood sugar two and one-half hours after such a meal is normal, then whether or not the patient has had sugar in the urine, one can rest assured that he is not a diabetic."

Liver Function Test.—This test was first described by Rosenthal in 1922 and is intended to check the function of this important organ. The technic of it is quite simple: Phenoltetrachlorphtalein or Bromsulphalein (by preference) is injected into the vein. Two specimens of blood are withdrawn from the other arm; first 5 minutes and second 30 minutes after injection of the dye. By colorimetric method an estimation of the dye remaining in the blood serum is made. Normally all dye should be eliminated from the circulation within 30 minutes. Obstruction of ducts will increase the time of elimination. In cases of pathology in the liver, Van den Bergh test (estimation of the bilirubin in blood serum) or even simple determination of Icterus Index could be also valuable although less so than Rosenthal's test.

DISCUSSION: *By Dr. I. A. Nelson, Tulsa.*

Dr. V. G. Isvekov has presented a paper in which he expressly brings to your minds a most convenient *summary* of those chemical constituents of the blood and those functional tests which we should keep in mind in dealing with many of our patients. He has also stated that he is interested in popularizing these procedures and make them as familiar to us as a white blood count for instance. This effort is necessary, in fact so necessary that at the annual American Medical Association meeting two excellent non-technical papers were read and published.

It occurs to me that one trouble with this phase of medicine is not that it is not useful nor essential. The biggest trouble with it is that it has to appeal to your minds in a strange language and indirectly. For example: so many clinicians have equipped themselves with X-ray machines for the most human reason that with it we can *see* and the patient thinks we can *see*. It matters not whether we see through a glass darkly and can prophesy only in part. We *see*. And the old Chinese saying that one look is worth a thousand words shows how long we have used this method. And there is no error in this as far as it goes. Even the chemical analysis of blood is almost altogether an ingenious manipulation of chemicals so minute traces of substances manifest themselves in degrees of color intense enough so we can see quantitative differences as distinct changes. We all like to *see*. However we are livinig in an age when the mind's eye should be exercised and we must permit the actinic light of scientific knowledge to penetrate and keep active the sensibilities for pathological colorings and shades.

When I hear a clinician say that "it costs so much" I know he has not yet learned to see. And right here I want to urge that in this discussion we should for once let our imagination go and keep quiet about the economics. It is not a paper to call for bickering, say for instance on one item Dr. Isvekov listed, namely that all surgical patients should have a complete blood chemistry. We should keep two thoughts uppermost. One is that certain procedures are available and necessary and second that we should familiarize ourselves with these.

In thinking about this discusion I decided not to dwell on the technical side. The results might end up somewhat like an incident which applies here. One of the Sisters in St. John's Hospital had a blood sister expecting a baby. She wanted to send an appropriate present so she crochetted a pair of pink and a pair of blue little baby shoes. Her sister had twins, one a boy and one a girl. The Grandmother was proud of the foresight displayed but the mother was dismayed and laid down the law "never do that again." So we will stick to the pink shoes of popularizing.

The older physicians have been taught to use the modern biologicals by aggressive, patient, but confident salesmen. You all have in your offices bottles to taste,

smell and see. It does no longer seem to me that functional and chemical procedures are mysteries which belong to the next generation. Your literature and your books are at your hand. The clinical pathologist is here to stay. He is or should be an investment to you as consultant. He will always be ahead of books in keeping you informed in new or modified procedures and indications, and, he is such a poor business man that he charges only for the actual test and none for consultation.

Maybe only 5 per cent of patients that come to the physican have true organic ailments, but it is on this 5 per cent that the physician shows his measure of scientific progress. The 95 per cent show his measure of personality, art and wisdom.

We feel infringed upon by the cults. They know the value of advertising the new—the mysterious. I know of a chiropractor who advertises herself as "biochemist," physiotherapist, etc. One day she stopped at a clinical laboratory to find out if they analyzed whiskey for poisons, adding that she was a "biochemist" and specialized in regulating the chemical processes in the body.

Physicians might nourish that talent of the mind which we understand as "awareness." Each case is individual but it has a bearing on medicine as a whole. How do we know what neighbor, legislator or preacher is going to suggest to our patient that some chiropractor will straighten up his or her chemical processes? It seems to me that by actual word or inference we should spike the guns of doubt and curiosity in our patients with the positive comfort that we know they either do or do not need special methods as "physiotherapy," "X-ray," "Chemical and Biological Tests," "Psychotherapy," etc. We believe firmly that the future will see the growth and development of scientific methods, but what are we doing to mold the form of such use. Are we going to let standardized routine under some Government system reduce such to a drudgery and rob us of the mental pleasure of being diagnosticians or are we going to show our children and the next generation that we saw and knew "what was good and made use of these chemical and functional tests."

ACUTE GLANDULAR FEVER OF PFEIFFER

In an epidemic of the acute glandular fever of Pfeiffer reported on by Clara M. Davis, Chicago (Journal A. M. A., April 27, 1929), all the infants and one nursemaid in a small nursery were affected. There was wide variation in the severity of the cases, but all conformed closely to the description of Pfeiffer. Lymphocytosis appeared early in the incubation period. Relapses occurred in the usual large percentage of cases. Suppurative complications occurred only in infants with mixed infections. Recovery within four weeks, with a return of the glands to their preepidemic size and condition, was the rule.

EXCRETION OF LEAD

The studies described by Robert A. Kehoe and Frederick Thamann, Cincinnati (Journal A. M. A., April 27, 1929), have demonstrated that lead is being excreted in both the urine and the feces of normal persons, quite apart from industrial exposure to lead compounds. They show, further, that persons whose occupations involve some degree of contact with lead excrete somewhat larger quantities of lead as a general rule, while those for whom exposure to lead compounds constitutes a recognizable industrial hazard excrete still larger amounts. They selected: (a) Subjects with no occupational exposure to lead: Seventy-one medical students provided the subjects of this type. (b) Subjects with slight occupational exposure to lead: Seventy-two filling station handlers of commercial gasoline not containing lead (tetra-ethyl lead) were studied. (c) Subjects with a present exposure to recognized lead hazards. Ninety-seven subjects representing all the various degrees of dust exposure in two hazardous lead industries furnished the data for this portion of the study. A detailed and chronological occupational history was obtained on each subject. (A careful physical examination, urinalysis and blood examination were made, but these data are not considered in the discussion.) Not less than 2 liters of urine, and not less than a single large evacuation was requested of each subject. In analyzing the feces and urine they used certain modifications of the Fairhall method employed by them in 1926. They conclude that the appearance of lead in both the urine and the feces of students shows that some degree of lead absorption is "normal" for everybody.

THE ADAPTABILITY OF DEXTRI-MALTOSE TO THE SUCCESSFUL FEEDING OF INFANTS

For almost thirty years physicians have associated Dextri-Maltose with cow's milk and water formulae as being "the second thought after breast milk, "the first thought."

Fresh cow's milk, however, is not the only artificial milk with which Dextri-Maltose may be successfully used. It is equally valuable for the modification of evaporated milk, dry and powdered milks, lactic acid milk and protein milk.

When the supply of fresh cow's milk is unsafe or scarce, and the physician finds it necessary to substitute evaporated milk, he will find "Dextri-Maltose with Vitamin B" particularly valuable because it compensates for the loss of vitamin B-1 during the process of evaporating milk.*

*United States Dept. of Agriculture, Circular No. 84, Page 4.

THE JOURNAL

OF THE

Oklahoma State Medical Association

Issued Monthly at Muskogee, Oklahoma, under direction of the Council.

VOL. XXIII SEPTEMBER, 1930 No. 9

DR. CLAUDE A. THOMPSON.....Editor-in-Chief
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor
Medical Arts Building, Tulsa, Okla.

Entered at the Post Office at Muskogee, Oklahoma, as second-class mail matter July 28, 1912.

This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, Barnes Building, Muskogee, Oklahoma. $4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

PRINTED BY HOFFMAN-SPEED PRINTING CO., MUSKOGEE

EDITORIAL

COUNTY OFFICERS

It has almost become a habit of the Secretary to annually call the attention of our members and County Society officers to the timeliness and necessity of calling together an organization of the county societies, for its serious work during the next nine months.

This work always engages the attention of a few active, energetic men who lead in the execution of such scientific activities. Among these the president and secretary should be found, and they should see to it that plans and programs for the future are immediately made and put into working order. Oklahoma now has many able and willing men who deem it a pleasure to visit county societies and pass on to the rank and file their conclusions and findings anent the many specialties in which they are intensely and enthusiastically interested. Likewise, in nearly every locality there will be found local men who are unusually able and highly informed along certain lines of work; these men often have a message worthwhile and know how to deliver it. They are valuable to the rest of the membership and should be called upon from time to time. Perhaps one of the best plans for well covering a given subject is the one calling for symposiums on certain conditions and diseases; these are divided up, and in such a manner that those highly worthwhile are well brought out and render more or less service to those who attend.

It should not be forgotten that it is the policy of medical organizations that county medical societies hold at least one business meeting during the year, at which time economic matters affecting the physician are brought up and discussed. Such a meeting at this particular time in our national state of affairs, which adversely affects all physicians, should be more than worthwhile.

It should be the immediate duty of all county officers to see to it that their societies are called together and plans made to make the work worthwhile.

—o—

ECONOMIC ASPECTS AFFECTING THE PHYSICIAN

The United States is now passing through a prolonged and unusually wide spread period of depression. While it is hoped that the peak has been reached and there will be improvement, this is not certain by any means and it might be months before conditions change. One of the first persons affected, and affected longer than any other, is the physician. Everywhere people have grown into the habit, some of them paying the physician, if they can, some of them not paying him at all, unless they are compelled to. Many men are out of work or work irregularly, many people who have money are clutching it with a miserly hand and with the idea that these conditions will prevail always, which of course they will not.

The physician of all men, should not become panicky over the situation. The United States, per capita, is the richest country in the world. It is so rich that many luxuries have become a habit and necessity, rather than what they should be. Thousands of men still drive to their work in cars which a few years ago they would have thought impossible of owning. Wages over a long period have been high and men have grown into the habit of expecting it. Now, in many lines they must come down, but that does not alter the fact that the country basically is tremendously wealthy, that there are billions of dollars tied up for the time being, withdrawn from circulation and use or otherwise difficult of accessibility; these and other conditions, the heat, drouth, crop failures, lack of confidence, are all conditions that bring about an unusual situation. The doctor should remember that these conditions have existed before and that bad times will invariably succeed good times, but he should not become nervous and unduly apprehensive, and he will not do so if he sits steadily in the boat and functions as a cool, calm man.

It should not be forgotten that there never was a time when the patient has been found to be more in the slough of despond. No doubt allegations of malpractice will greatly increase, for it is well known that these are easily brought about by injudicious and untimely attempts to collect fees. The doctor should insist upon payment from those able and in position to pay, but he should not forget the adage about "getting blood out of a turnip." The doctor should give more personal attention to the business end of his work, if possible, then he has heretofore and he should not forget another adage "if a man attends to his work, his work will attend to him." The doctor should not forget that nothing, no situation or condition is ever entirely satisfactory, and our situation is never ideal and as we would have it.

So in this time of stress perhaps it will be best to consider the matter philosophically and remember that things have a habit of coming out right, or nearly so, in the end.

REPORT OF DELEGATES OF OKLAHOMA STATE MEDICAL ASSOCIATION TO DETROIT MEETING OF A. M.A. JUNE 23 TO 28, 1930.

Except to give account of our stewardship and stress some points in reports of transactions printed in Journal of A.M.A., this report would be unnecessary.

By reason of the rapid growth and development of the American Medical Association it now appears that it has outgrown our present quarters and that new quarters must be provided in the near future. When we consider that our officers published seven journals along with the A.M.A. Journal, Hygea and the American Medical Directory, we may more nearly visualize the scope and magnitude of their work and the facilities necessary for carrying on such an enterprise.

The gross earnings from Journal is now about one million five hundred thousand dollars with an operating expense of about one million dollars. After miscellaneous expenses were deducted the net income last year was $226,461.00. So it now looks that absolute necessity will force the association to vacate its present inadequate quarters and build quarters in keeping with the dignity, growth and development of our association.

Your delegates were in accord with and supported a resolution looking with disfavor upon the policy of our government rendering aid to disabled veterans with nonservice connected disabilities.

A midyear meeting of the House of Delegates of the A.M.A., recommended by president-elect Gerry Morgan, was disposed of by the Reference committee on reports of officers by advising such exigency as now covered by provisions in our Constitution and By-laws.

A number of matters were considered in an executive session in which only delegates, officers, secretaries and presidents of component state associations were permitted to be present. Upon such matters as prescribing whiskey, in which Government regulates amount you may give, the Press cannot be trusted to report and state our true position.

In seeking to present any problems on resolution to the House of Delegates of the A.M.A., it is well that same be first carefully considered and discussed in our State House of Delegates. Therefore members of our State Association who are

making a study of medical problems and have matters they feel should be presented to the legislative body of the A.M.A., may bring them up before the House of Delegates of Oklahoma State Association or in manner less desirable take up with members of your A.M.A., Delegates. We are your Delegates and should like to serve you better.

Finally may we report that our contact in the House of Delegates of the A.M.A., inspires confidence in, and admiration for both the business and editorial staff of the A. M. Association.

W. ALBERT COOK
HORACE REED
MCLAIN ROGERS

—o—

Editorial Notes—Personal and General

DR. AND MRS. W. ALBERT COOK, Tulsa, spent the summer at Battle Creek, Michigan.

DR. AND MRS. HALSELL FITE, Muskogee, are spending several weeks at Tampa, Florida.

DR. AND MRS. W. PAT FITE, Muskogee, have returned to their home after spending the Summer months in Minnesota.

DR. R. E. SAWYER, Durant, has returned from a four week's visit to the Mayo Clinic, Rochester, and Kellogg Clinic, Battle Creek.

DOCTORS A. W. WHITE, WENDEL LONG, and Lea A. Riely attended the British Medical Association in Winnipeg, Canada, August 25th to 29th.

DR. AND MRS. H. T. BALLANTINE, and children, Muskogee, spent several weeks in July and August, visiting points in Kentucky and Tennessee.

DR. J. O. LOWE, Tulsa, former Okmulgee physician, is slowly improving from an illness which has kept him in the hospital for more than two weeks.

DR. AND MRS J. HUTCHINGS WHITE, Muskogee, visited Virginia during the summer and will conclude their vacation with a trip to the Northern Lakes.

DR. HERMAN FAGIN, Oklahoma City, announces the removal of his office from 712 Medical Arts Building to 304 Osler Building, 1200 North Walker.

DR. E. S. LAIN, Oklahoma City, who has made a prolonged visit to Europe, is spending much of the time at Stockholm. He will return to his work September 15th.

DRS. W. W. RUCKS, D. D. Paulus, and W. W. Rucks, Jr., of Oklahoma City, were on the program at the Lincoln County Medical Society meeting at Stroud, Wednesday evening, Sept. 3rd.

DR. E. ALBERT AISENSTADT, Medical Reserve, U. S. Army, of American Hospital, Picher, Okla., ordered for training with the 358th F. A., Ft. Sill, Okla., from August 31st to September 14th, 1930.

DR. AND MRS. A. L. McINNIS, Enid, sustained painful injuries when their automobile overturned, while returning from a vacation spent in Colorado. Dr. McInnis was rather seriously injured, but fortunately both will recover.

DOCTOR AND MRS. T. C. SANDERS, Shawnee, spent the last two weeks of August in Rochester, Minn., where Dr. Sanders attended the Clinic. Later they joined a group of Shawnee folk at Bimidgi, returning to Shawnee September 1st.

DR. AND MRS. E. S. FERGUSON and son Dr. Gordon Ferguson, Oklahoma City, left August 10th for Brainard and Gull Lake, Minn. Later they will visit Winnipeg, Canada, where both men will attend the British Medical Association convention, the last week in August.

DR. BENJAMIN J. DAVIS, Cushing, who with a large party of friends, has been visiting European points has returned to his work. During his absence he visited England, Holland, Belgium, Germany, Switzerland, Italy and France. Spent some time at the hospitals in London and the clinics at Heidelberg and Munich. To make the matter irritating Dr. Davis reminds us that he enjoyed only two hot days while he was away. He says the Europeans are still backward, apparently they have not heard of the 18th amendment.

THE CENTRAL ASSOCIATION OF Obstetricians and Gynecologists meets Thursday, October 9th, in Kansas City, in conjunction with the Kansas City-Southwest Clinical Society. Members of the Association will cooperate in conducting clinics in the morning, while in the afternoon they will provide a symposium on Normal Labor. Dr. Fred L. Adair, Chicago, Management of Pregnancy; Dr. P. W. Toombs, Memphis, Management of the First and Second Stages of Labor; Dr. L. A. Clakins, Kansas City, Management of the Third Stage; Dr. Jennings C. Litzenberg, Minneapolis, Occiput Posterior; Dr. Fred J. Taussig, St. Louis, Breech Presentation; Dr. Rudolph W. Holmes, Chicago, Prolonged Labor; and Dr. G. D. Royston, St. Louis, Post-natal Care.

On Friday and Saturday mornings, October 10th and 11th, the Association will conduct scientific sessions at the Hotel Elms, Excelsior Springs, Missouri. Members of the profession are cordially invited to attend. Registration can be made at the Hotel—there will be no fee. Formal papers and case reports will feature the programs.

Excelsior Springs is only thirty miles from Kansas City, with good interurban and bus service, and with excellent roads for those who motor.

Physicians wishing programs of the Excelsior Springs meeting may address Dr. E. D. Plass, Secretary, University Hospital, Iowa City, Iowa.

DOCTOR CHARLES W. BALLAINE

Dr. C. W. Ballaine, pioneer physician of Cleveland Oklahoma, died suddenly at his home July 31, 1930.

He was born in Louisa County, Iowa, April 14, 1867. His early life was spent in Washington Territory; he attended Jenkins University, Spokane, and later entered the University Medical College at Kansas City, Mo.

In the fall of 1899 Dr. Ballaine came to Cleveland, Oklahoma, where he has practiced continuously since.

Dr. Ballaine is survived by his wife, three children, six brothers and two sisters.

DOCTOR J. ARTHUR MULLINS

Dr J. A. Mullins, 50 year old Marlow physician, was found burned to death in his car, August 11th.

Born in Red Rock, Marion County, Iowa, July 22, 1880, Dr. Mullins attended public school and grew to early manhood in that community. In 1901 he accompanied his family to Quinlan, Oklahoma. In 1908. after one year spent in a medical school at Ft. Worth, Texas, he entered the University of Oklahoma, from which institution he was graduated in 1911. He married Miss Frances Ethel Clutter, in Oklahoma City, April 19, 1910. Following his graduation he practiced one year in Oklahoma City, then moved to Marlow where he has been since that time.

Dr. Mullins was a member of the Masonic Lodge, an active member and past President of the Rotary Club, and Worthy Patron of the Eastern Star.

Interment was in the Marlow cemetery, under the auspices of the Marlow Masonic lodge.

He is survived by his wife, a daughter and his father.

—o—

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Exairesis of the Phrenic Nerve in the Treatment of Pulmonary Tuberculosis. By Ray W. Matson, M.D. The American Review of Tuberculosis, July 1930.

It has been demonstrated that in fully 25 to 35 per cent of all persons anomalies of the phrenic nerve existed in the form of accessory fibres which usually join the main stem of the phrenic nerve just below the sternal end of the first rib, so that they continued to enervate the diaphram. To anterrupt impulses coming from accessory branches, Felix proposes an "exairesis" of the phrenic nerve after having cut it, by winding it around haemostatic forceps and withdrawing it.

The author has since 1924 operated upon more than 300 cases. The prenicus exairesis of Felix was attempted in all cases, but when the section of nerve fibre evulsed measured less than 10 cm. the operation was converted into a radical phrenicotomy.

The author has never observed a return of function when the evulsed fibre measured 10 cm. or more. His experience tends to show if one evulses less than 10 cm. of nerve fibre and fails to sever accessory or communicating fibres, a return of diaphragmatic function can be expected in about 25 per cent of cases.

The beneficial influence of a satisfactory hemidiaphragmatic paralysis is manifest clinically in a marked reduction of the amount of expectoration, the rapid disappearance of fever, and a corresponding improvement in the general condition of the patient; appetite improves, weight increases, the fatigue subsides, the secondary anemia disappears and the patient looks and feels better.

The induction of hemidiaphragmatic paralysis is strongly recommended in all patients for whom a pneumothorax is indicated, and pleuritic adhesions prevent the introduction of gas, and as a preliminary to every thracopyasty.

Effect of Irradiated Ergosterol on the Calcium Concentration of the Blood Serum in Pulmonary Tuberculosis. Jacob Kaminsky and Doris L. Davidson. American Journal of Tuberculosis, July 1930.

Rather striking effects on blood calcium have been noted following the oral administration of irradiated ergosterol. It has been noted that in cases with abnormally high blood calcium brought about by ingestion of this drug, the rise persisted for a considerable period after the irradiated ergosterol had been discontinued. It was thought it might be of interest to inquire into the effects of irradiated ergosterol on the serum-calcium concentration in pulmonary tuberculosis and note its influence on the course of the disease as may be revealed by clinical and roentgen-ray findings.

The author selected 10 men for preliminary study, their ages ranging from 17 to 30. Two preliminary serum-calcium determinations were done; the first reading was taken eight days and the second one two days before the first dose of the drug was administered. Blood was drawn from the arm, on a fasting stomach, and the serum-calcium determined.

Twenty drops of ergosterol were administered daily in one dose at 9 A. M. for seven days and another serum-calcium determination was done 22 hours after the last dose of the drug was given. There was a considerable rise of the serum-calcium concentration in the entire series, raising the average for the series from 9.38 to 12.08 mgm. per 100 cc. of blood-serum.

The Treatment of the "Early" Case of Tuberculosis. By Miles J. Breuer, American Review of Tuberculosis, July 1930.

The author discusses in a vivid and interesting manner the management of the "early" case of

pulmonary tuberculosis. He states that the outlook for a cure depends not only on the patient's pathological involvement, but on his mental equipment and on his economic resources, and of the special aptitude of the physician for treating this type of case. Patients must be treated as individual human problems and not as "cases of tuberculosis." The working out of the personal or hunman side of each case is quite as essential to recovery as is the medical side.

The author further stresses that in the present state of our knowledge, it would seem best never to discharge a case as cured, but to make the patient feel that he must remain indefinitely under observation and under the obligation of maintaining a constant effort to keep up the adjustment between his capacity and his enviroment.

BOOK REVIEWS

Tropical Medicine in the United States, By Alfred C. Reed, M. D., Professor of Tropical Medicine, The Pacific Institute of Tropical Medicine Within the George Williams Foundation for Medical Research of the University of California. 60 illustrations. Cloth $6.00 J. B. Lippincott and Company, Philadelphia and London.

With the development and far flung overseas commerce of America and other national marine, with the opening of the Panama Canal and with the calling at our various ports of thousands of ships from everywhere, the United States, especially coastal part, is subject at all times to the possibility of various infections and diseases, not ordinarily seen by even busy American practitioners.

This volume considers especially those diseases more prevalent in hot climates, and not so often seen in this country. The work should prove of especial value to those physicians living on the sea board, southern states and the health officers.

Dietetics and Nutrition, By Maude A. Perry, B. S., formerly Director of Dietetics at the Michael Reese Hospital, Chicago, Illinois, and at the Montreal General Hospital, Montreal, Canada. Cloth $2.50. C. V. Mosby Company, St Louis.

This volume is a combination of the work taken from former articles and books written by the author. It is the consensus of opinion based upon these works and large practical experience and many years of experience in Institutional work.

Personal and Community Health, By Clair Elsmere Turner, M. A., Dr. P. H., Professor of Biology and Public Health in the Massachusetts Institute of Technology; formerly Associate Professor of Hygiene in the Tufts College Medical and Dental Schools; sometime member of the Administrative Board in the School of Public Health of Harvard University and the Massachusetts Institute of Technology; Fellow American Public Health Association; Major, Sanitary Corps, U. S. A. (Reserve). Third edition. Cloth, Price $2.75. C. V. Mosby Company, St. Louis.

This is a practical work and will prove of value to health officers, educators and those interested in public health work.

Physical Diagnosis, By Richard C. Cabot, M. D., Professor of Clinical Medicine in Harvard University, formerly Chief of the West Medical Service at the Massachusetts General Hospital. Tenth edition, revised and enlarged, with 6 plates and 279 figures in the text. Cloth, $5.00. William Wood Company, New York.

The diagnostic ability of Dr. Cabot, his leadership and pioneering in all matters calling for diagnostic acumen, are so well known that laudation is unnecessary in commenting upon his work. This book is made up from the practical things that Dr. Cabot has found worth while and of value in his own work.

Clinical Nutrition and Feeding in Infancy and Childhood, By I. Newton Kugelmass, M. D., Ph. D., Sc.D. Associate Attending Pediatrician, Fifth Avenue Hospital; Riverside Hospital; Pediatrist, Hospital for Ruptured and Crippled; Director, Heckscher Institute For Child Health. 37 Illustrations. Cloth, $6.00. J. B. Lippincott & Company, Philadelphia and London.

Feeding to fit the disease is largely becoming one of the fixed sciences and arts in medicine. Information on dietetics necessary in some form or other has become a necessity to every physician, regardless of his special type of work or inclinations.

This book is excellent in that it describes the constituents of foods, the necessity in their administration in certain conditions, the necessity for their abstinence in certain conditions, and the various values of each in kind.

Manuel of the Diseases of the Eye. For Students and General Practitioners, By Charles H. May, M. D., Director and Visiting Surgeon. Eye Service, Bellevue Hospital, New York, 1916 to 1926; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Thirteenth Edition, Revised. With 374 Original Illustrations, including 23 plates, with 73 colored figures. Cloth, $4.00. William Wood and Company, New York, 1930.

This work is valuable to all physicians, especially busy practitioners, upon the diseases of the eye and it is especialy suitable to those beginning the study of ophthalmology. The colored plates are remarkably fine and perfectly illustrate the normal and pathological conditions found upon examination.

Gonococcal Infection in the Male, By Abr. L. Wolbarst, M. D., Urologist and Director of Urologic Clinics, Beth Israel Hospital; Consulting Urologist, Central Islip State Hospital, Manhattan State Hospital, Jewish Memorial Hospital and Madison Park Hospital. Second edition, completely revised and enlarged with 140 illustrations, including 7 color plates. Cloth, $5.50. C. V. Mosby Co., St. Louis.

Dr. Wolbarst, in his first edition, presented a very useful book to those charged with the treatment of gonococcal infections. This second edition has been thoroughly revised. The author believes that gonococcal infections must be considered a constitutional disease, which may be cured

by the inherent reparative forces of the individual, acting through the blood stream and that we may assist in the development of these natural resources or retard them by the unwise therapeutic measures. The illustrations in this book are very practical and fit the problems found by the physician.

A Medical Revue with a Prologue and a Good Many Scenes, By Morris Fishbein, M. D., Editor of the Journal of the American Medical Association and of Hygeia, the Health Magazine. With illustrations by Dan Layman. Price, $1.00. The Bobbs-Merrill Company, Indianapolis.

This little volume is full of laughs of and about the doctor. No one in the country is better fitted than Dr. Fishbein to point out the fallacies, weakness and virtues of the doctor in the many roles he assumes.

REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS

Examination held at State Capitol, Oklahoma City, June 10th and 11th, 1930. The following applicants passed.

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Ablelarde, Jose F.	1898	P. I.	Univ. of Okla.	1930	Oklahoma City,
Abernethy, Alton Coy	1903	Oklahoma	Univ. of Okla.	1930	Oklahoma City,
Arrington, Carl Thos.	1897	Arkansas	Univ. of Okla.	1930	Oklahoma City,
Allgood, Elvus J.	1900	Louisiana	Univ. of Okla.	1930	Oklahoma City,
Buila, Gordon G.	1904	Oklahoma	Univ. of Okla.	1930	Oklahoma City,
Braun, Jacob Peter	1905	Mulhall, Okla.	Univ. of Okla.	1930	Oklahoma City,
Baugh, Harold Timberlake	——	Clifton, Okla.	Univ. of Okla.	1930	Oklahoma City,
Bohannon, Jas. Raymond	1899	Kentucky	Univ. of Ark.	1930	Oklahoma City,
Brewer, Kenneth A.	1907	Norman, Okla.	Univ. of Okla.	1930	Oklahoma City,
Brown, Gerster Wm.	1903	Lonegrove, Okla.	Univ. of Okla.	1930	Oklahoma City,
Bassett, Clifford Monroe	1904	Missouri	Univ. of Okla.	1930	Oklahoma City,
Bartell, Jack Orvis	1901	Okla. City, Okla.	Univ. of Okla.	1930	Oklahoma City,
Copeland, Edwin King	1899	Tennessee	Univ. of Okla.	1930	Oklahoma City,
Cole, Orville Wilbur	1908	Hollis, Okla.	Univ. of Okla.	1930	Oklahoma City,
Crawford, Gwen Whelpley	1907	Bay, Ark.	Univ. of Ark.	1930	Dewey, Okla.
Darrough, John Walton	1904	Vinita, Okla.	Univ. of Okla.	1930	Oklahoma City.
Eberhart, Marjorie G.	1904	Ft. Smith, Ark.	Univ. of Okla.	1930	Oklahoma City.
Evans, Alfred M.	1902	California	Univ. of Okla.	1930	Oklahoma City.
Eades, Dee W.	1906	Piedmont, Okla.	Univ. of Okla.	1930	El Reno, Okla.
Fox, Fred T.	1904	Kansas	Univ. of Okla.	1930	Oklahoma City,
Hood, Frederick Redding	1900	Oklahoma	Univ. of Okla.	1930	Oklahoma City,
Hoshall, F. Adelbert	——	Norman, Okla.	Univ. of Okla.	1930	Norman, Okla.
Hilbig, Albert L.	1901	Kansas	Univ. of Okla.	1930	Oklahoma City,
Irby, Addison Craft	1905	Mississippi	Northwestern	1928	Oklahoma City,
Jeffress, Vinnie Hale	1903	Roff, Okla.	Univ. of Okla.	1930	Oklahoma City,
Jackson, Alvin Ross	1897	Texas	Univ. of Okla.	1930	Oklahoma City,
Keltz, Bert F.	1904	Iowa	Univ. of Iowa	1930	Oklahoma City,
Long, Ray Hubert	1904	Rocky, Okla.	Univ. of Okla.	1930	Oklahoma City,
LeHew, Elton Wilmot	1904	Pawnee, Okla.	Univ. of Okla.	1930	Oklahoma City,
McKinney, Milam F.	1904	Mangum, Okla.	Univ. of Okla.	1930	Oklahoma City,
Mulvey, Bert E.	1906	Yukon, Okla.	Univ. of Okla.	1930	Yukon, Okla.
Murray, E. Cotter	1903	Marceline, Mo.	Univ. of Okla.	1930	Oklahoma City,
Martin, John William	1906	Valliant, Okla.	Univ. of Okla.	1930	Oklahoma City,
Nichols, Ray Ernest	1901	Indiana	Univ. of Okla.	1930	Oklahoma City,
Neumann, Milton A.	1907	Guthrie, Okla.	Univ. of Okla.	1930	Oklahoma City,
Nelson, Henry John	1898	Iowa	Univ. of Okla.	1930	Oklahoma City,
O'Donnell, Bernard Joseph	1903	Iowa	Univ. of Iowa	1929	Tulsa, Okla.
Payte, James Ira	1896	Texas	Univ. of Iowa	1930	Oklahoma City,
Pendergrass, Clayton Ira	——	Ceres, Calif.	Univ. of Okla.	1930	Oklahoma City,
Purviance, Carlton C.	1904	Texas	Univ. of Okla.	1930	Oklahoma City,
Rude, Joe C.	——		Univ. of Okla.	1930	Jester, Okla.
Rogers, William Gerald	1907	Fulton, Mo.	Univ. of Okla.	1930	Oklahoma City,
Rolle, Neeson	1907	Mansfield, La.	Univ. of Okla.	1930	Oklahoma City,
Royster, Ralph L.	1906	Wanette, Okla.	Univ. of Okla.	1930	Wanette, Okla.
Stoner, Raymond Ward	1899	Dundee, Iowa.	Univ. of Okla.	1930	Oklahoma City,
Traweek, Albert C., Jr.	1898	Ft. Worth, Tex.	Univ. of Okla.	1930	Oklahoma City,
Williams, R. McKinley	1904	Oklahoma	Univ. of Okla.	1930	Oklahoma City,
Wilkerson, Bernie J.	1900	Duncan, Okla.	Univ. of Okla.	1930	Oklahoma City,
Weisiger, Ross Wilson	1903	Nashville, Tenn.	Univ. of Okla.	1930	Oklahoma City,
Wood, Harold A.	1902	Oklahoma	Univ. of Okla.	1930	Oklahoma City,
Anderson, Edward Stanley	1891	Toronto, Canada	McGill Univ.	1924	Tulsa, Okla.
Barker, Joseph Louis	1876		Univ Louisville	1898	Oklahoma City,
Burton, John Flack	1897		Columbia Univ. Col. P. & S.	1923	Oklahoma City,
Darwin, Darius Waterhouse	1898	Tennessee	Univ. Tenn.	1929	Woodward, Okla.
Carney, Andre Blythe	1898		N. Y. Univ.	1922	Clarksdale, Miss.
Ellefson, Olley Darwin	1903		Univ. Iowa	1927	St. Louis, Mo.
Hall, Lyman Speer	1897		Univ Louisville	1925	Durant, Okla.
Henry, Gifford Harold	1901		Univ. Illinois	1927	Brooklyn, N. Y.
House, Jeff D.	1901		Univ Louisville	1913	Sledge, Miss.
Laughon, William Isaam	1888		Med. Col. Va.	1917	Picher, Okla.
Lewis Edwin	1863		Central Md. Col. St. Joseph, Mo.	1903	Oklahoma City,
Mingus, Forest M.	1860		Univ. of Iowa	1890	Ringling, Okla.
Reed, Paul Henry	1901		Rush Med Col.	1929	Texhoma, Okla.
Sewell, Bennett Newton, Jr.	1903		Northwestern	1929	Boyce, La.
Walker, Jake Lee	1900		Washington Univ.	1926	Oklahoma City,
Wells, Milo C.	1900		Univ. Louisville	1929	Bartlesville, Okla.

OFFICERS OKLAHOMA STATE MEDICAL ASSOCIATION

President, 1930-31, Dr. E. S. Ferguson, Oklahoma City.
President-elect, Dr. Howard C. Weber, Bartlesville.
Secretary-Treasurer-Editor, Dr. Claude A. Thompson, Muskogee.
Meeting Place, 1931, Oklahoma City.
Delegates to A. M. A.: Dr. Albert W. Cook, Tulsa, 1931-32; Dr. Horace Reed, Oklahoma City, 1931-32; Dr. McLain Rogers, Clinton, 1930-31.

CHAIRMEN OF SCIENTIFIC SECTIONS

General Medicine: Dr. Ben H. Cooley, Chairman, Norman; Dr. Henry H. Turner, Secretary, 1200 North Walker, Oklahoma City.

Eye, Ear, Nose and Throat: Dr. Ruric N. Smith, Chairman, Medical Arts Building, Tulsa; Dr. A. L. Guthrie, Secretary, Medical Arts Building, Oklahoma City.

Surgery: Dr. W. C. Vernon, Chairman, Okmulgee; Dr. Leonard Williams, Secretary, 1200 North Walker, Oklahoma City.

STANDING COMMITTEES 1930-1931

Scientific Work. Dr. R. M. Howard, Chairman, Oklahoma City; Dr. P. P. Nesbitt, Tulsa; Dr. A. B. Chase, Oklahoma City; Dr. C. A. Thompson, Muskogee.

Public Policy and Legislation. Dr. J. M. Byrum, Chairman, Shawnee; Dr. R. V. Smith, Tulsa; Dr. McLain Rogers, Clinton.

Medical Defense. Dr. L. S. Willour, Chairman, McAlester; Dr. Wm. Gallaher, Shawnee; Dr. F. M. Adams, Vinita.

Medical Education and Hospitals. Dr. A. S. Risser, Chairman, Blackwell; Dr. A. W. White, Oklahoma City; Dr. Fred Clinton, Tulsa.

Medical Economics. Dr. W. H. Bailey, Chairman, Oklahoma City; Dr. J. Hutchings White, Muskogee, Dr. T. C. Sanders, Shawnee.

SPECIAL COMMITTEES 1930-1931

Tuberculosis Study and Control. Dr. L. J. Moorman, Chairman, Oklahoma City; Dr. F. P. Baker, Talihina; Dr. R. M. Shepard, Tulsa.

Conservation of Vision. Dr. W. A. Cook, Chairman, Tulsa; Dr. C. B. Barker, Guthrie; Dr. Milton K. Thompson, Muskogee.

Conversation of Hearing. Dr. L. C. McHenry, Chairman, Oklahoma City; Dr. Chas. M. Fullenwider, Muskogee; Dr. H. S. Brown, Ponca City.

Venereal Disease Control. Dr. Rex Boland, Chairman, Oklahoma City; Dr. Henry S. Browne, Tulsa; Dr. S. D. Neeley, Muskogee.

Cancer Study and Control. Dr. E. S. Lain, Chairman, Oklahoma City; Dr. James Stevenson, Tulsa; Dr. Frank McGregor, Mangum.

Contract and Industrial Practice. Dr. Pat Fite, Chairman, Muskogee; Dr. C. E. Clymer, Oklahoma City; Dr. A. Ray Wiley, Tulsa.

Crippled Children. Dr. Wade Sisler, Chairman, Tulsa; Dr. Earl D. McBride, Oklahoma City; Dr. W. K. West, Oklahoma City.

Necrology. Dr. Ellis Lamb, Chairman, Clinton; Dr. R. M. Anderson, Shawnee; Dr. J. S. Fulton, Atoka.

Publicity. Dr. C. A. Thompson, Muskogee.

STATE BOARD OF MEDICAL EXAMINERS

Dr. D. W. Miller, Blackwell, President; Dr. J. M. Byrum, Shawnee, Secretary; Dr. W. P. Fite, Muskogee; Dr. H. C. Weber, Bartlesville; Dr. W. T. Ray, Gould; Dr. L. E. Emanuel, Chickasha; Dr. Frank McGregor, Mangum.

STATE COMMISSIONER OF HEALTH

Dr. C. W. Beson, Oklahoma City.

COUNCILORS AND THEIR COUNTIES

District No. 1. Texas, Beaver, Cimarron, Harper, Ellis, Woods, Woodward, Alfalfa, Major, Dewy. Dr. H. A. Lile, Cherokee. (Term expires 1932).

District No. 2. Roger Mills, Beckham, Greer, Harmon, Washita, Kiowa, Custer, Jackson, Tillman. Dr. Frank H. McGregor, Mangum. (Term expires 1932).

District No. 3. Grant, Kay, Garfield, Noble, Payne, Pawnee. Dr. Paul B. Champlin, Enid. (Term expires 1932).

District No. 4. Blaine, Kingfisher, Canadian, Logan, Oklahoma, Cleveland. Dr. LeRoy Long, Sr., Oklahoma City. (Term expires 1932).

District No. 5. Caddo, Comanche, Cotton, Grady, Love, Stephens, Jefferson, Carter, Murray. Dr. J. C. Ambrister, Chickasha. (Term expires 1932).

District No. 6. Osage, Creek, Washington, Nowata, Rogers, Tulsa. Dr. W. A. Howard, Chelsea. (Term expires 1932).

District No. 7. Lincoln, Pottawatomie, Okfuskee, Seminole, McClain. Dr. Wm. M. Gallaher, Shawnee. (Term expires 1931).

District No. 8. Craig, Ottawa, Mayes, Delaware, Wagoner, Adair, Cherokee, Sequoyah, Okmulgee, Muskogee. Dr. F. M. Adams, Vinita. (Term expires 1931).

District No. 9. Hughes, Pittsburg, Haskell, Latimer, LeFlore, McIntosh. Dr. Leonard S. Willour, McAlester. (Term expires 1931).

District No. 10. Johnson, Marshall, Coal, Atoka, Bryan, Choctaw, Pushmataha, McCurtain. Dr. J. S. Fulton, Atoka. (Term expires 1931).

CLASSIFIED ADVERTISEMENTS

WANTED—Capable and reliable surgeon wishes to establish a hospital in some small Oklahoma community, or will join a group of properly qualified physicians in such an establishment; his desire being to give the community a reasonably broad type of service. Address "Surgeon," care this Journal.

SITUATIONS WANTED — Salaried Appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

FOR SALE—$7000.00 practice in one of the best Oklahoma towns of 9000 population for the price of office equipment. Address "S" Care this Journal. Muskogee, Okla.

FOR SALE—One Victor Snook X-Ray machine, late model, complete with Coolidge Transformer and Controller and with Stabilizer, for 220 volts, 60 cycles, A. C., guaranteed to be as good as the day it left the factory. Bargain if taken quick. Address "M" care this Journal.

FOR SALE—Splendid new operating room equipment complete. Also seven beds. Liberal discount. Phone 2-1888, 411 S. Elwood, Tulsa, Oklahoma.

FOR SALE—Complete eye, ear, nose and throat office outfit. Address Mrs. Chas L. Blankes, 1604 S. Utica, Apt., B, Tulsa, Okla.

Lac-Bismo
(HART)

See Description, Journal A. M. A. Volume XLVII, Page 1488.

A Scientific combination of Bismuth Subcarbonate and Hydrate suspended in water. Each fluidrachm contains 2½ grains of the combined salts in an extremely fine state of subdivision.

Medical Properties: Gastric Sedative, Antiseptic, Mild Astringent and Antacid.

Indications: In Gastro-Intestinal Diseases, Diarrhoea, Dysentery, Cholera-Infantum, etc. Also suitable for external use in cases of ulcers, etc.

E. J. HART & CO., Ltd., Mfg. Chemists
New Orleans

OFFICERS OF COUNTY SOCIETIES, 1930

COUNTY	PRESIDENT	SECRETARY
Adair	E. P. Greene, Westville	Jas. A. Patton, Stilwell
Alfalfa	J. P. Bishop, Aline	L. T. Lancaster, Cherokee
Atoka-Coal	J. S. Fulton, Atoka	C. C. Gardner, Atoka
Beckham		T. J. McGrath, Sayre
Blaine		W. F. Griffin, Watonga
Bryan	C. J. Wells, Calera	J. L. Shuler, Durant
Caddo	I. S. Butler, Carnegie	P. H. Anderson, Anadarko
Canadian	W. P. Lawton, El Reno	A. L. Johnson, El Reno
Carter	F. P. vonKeller, Ardmore	F. A. Harrison, Ardmore
Cherokee	P. H. Medearis, Tahlequah	Swartz Baines, Tahlequah
Choctaw		W. N. John, Hugo
Cleveland	Chas. Rayburn, Norman	B. H. Cooley, Norman
Coal (See Atoka)		
Comanche	P. G. Dunlap, Lawton	L. W. Ferguson, Lawton
Craig	C. S. Neer, Vinita	W. R. Marks, Vinita
Creek	S. W. Reynolds, Drumright	R. E. Leatherock, Drumright
Custer	G. D. Williams, Weatherford	E. E. Darnell, Clinton
Garfield	W. B. Newell, Enid	John R. Walker, Enid
Garvin	Hugh Monroe, Lindsay	J. R. Calloway, Pauls Valley
Grady	G. R. Gerard, Chickasha	H. M. McClure, Chickasha
Grant		E. E. Lawson, Medford
Greer	C. C. Shaw, Mangum	J. B. Hollis, Mangum
Harmon	J. E. Jones, Hollis	R. H. Lynch, Hollis
Haskell	Emmett Johnson, Kinta	R. F. Terrell, Stigler
Hughes		F. A. Howell, Holdenville
Jackson	E. S. Crow, Olustee	E. W. Mabry, Altus
Jefferson	J. I. Hollingsworth, Waurika	J. I. Derr, Waurika
Kay		A. C. Kramer, Ponca City
Kingfisher	Newton Rector, Hennessey	C. M. Hodgson, Kingfisher
Kiowa	H. C. Lloyd, Hobart	J. H. Moore, Hobart
Latimer	T. L. Henry, Wilburton	E. B. Hamilton, Wilburton
LeFlore	W. L. Shippey, Wister	W. F. Lunsford, Poteau
Lincoln	H. C. Iles, Prague	F. H. Norwood, Prague
Logan	Wm. C. Miller, Guthrie	R. F. Ringrose, Guthrie
Marshall	P. F. Robinson, Madill	W. D. Haynie, Kingston
Mayes	J. E. Hollingsworth, Strang	Sylba Adams, Pryor
McClain	I. N. Kolb, Blanchard	O. O. Dawson, Wayne
McCurtain		R. H. Sherrill, Broken Bow
McIntosh	J. H. McCulloch, Checotah	W. A. Tolleson, Eufaula
Murray	J. C. Luster, Davis	H. C. Bailey, Sulphur
Muskogee	A. L. Stocks, Muskogee	E. H. Coachman, Muskogee
Noble	B. F. Coldiron, Perry	J. W. Francis, Perry
Nowata	F. R. Dolson Nowata	S. P. Roberts, Nowata
Okfuskee	J. A. Kennedy, Okemah	L. J. Spickard, Okemah
Oklahoma	E. D. McBride, Oklahoma City	Kirt G. Parks, Oklahoma City
Okmulgee	F. E. Sadler, Henryetta	M. B. Glismann, Okmulgee
Osage	W. H. Aaron, Pawhuska	M. E. Rust, Pawhuska
Ottawa	L. W. Troutt, Afton	J. W. Craig, Miami
Pawnee		
Payne	W. N. Davidson, Cushing	R. E. Roberts, Stillwater
Pittsburg	V. H. Barton, McAlester	F. L. Watson, McAlester
Pontotoc	O. E. Welborn, Ada	W. F. Dean, Ada
Pottawatomie	J. Elmer Hughes, Shawnee	W. M. Gallaher, Shawnee
Pushmataha	D. W. Connally, Clayton	John S. Lawson, Clayton
Rogers	W. S. Mason, Claremore	W. A. Howard, Chelsea
Seminole	T. A. Hill, Seminole	T. H. Briggs, Wewoka
Stephens	C. C. Richards, Marlow	W. S. Ivy, Duncan
Texas		R. B. Hayes, Guymon
Tillman		J. E. Childers, Tipton
Tulsa	F. F. Gorrell, Tulsa	Carl F. Simpson, Tulsa
Wagoner		
Washington	W. H. Kingman, Bartlesville	J. V. Athey, Bartlesville
Washita		C. B. Sullivan, Colony
Woods	I. S. Hunt, Freedom	O. E. Templin, Alva
Woodard	C. F. Camp, Buffalo	C. J. Forney, Woodward

NOTE—Corrections and additions to the above list will be cheerfully accepted.